YACHTING

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The motor-sailer has undergone many changes since the advent of the type twelve years ago. "Tamerlane," a Sparkman & Stephens 1933 design, is 53 feet water line and 65 feet over all. Her engine is a 100 h.p. Winton Diesel

The Evolution of a Type

How the Motor-Sailer Came Into Being and Has Developed

By CHARLES H. HALL

IN 1816, George Crowninshield, Jr., built *Cleopatra's Barge*, the first American yacht. From contemporary sketches and descriptions, she was just like the small merchant vessels of her day, her yacht-like features being confined to her accommodations and to the painting of her hull. Similarly, for many years the few yachts of this country were hardly to be distinguished, as far as design went, from commercial craft. Their lines were perhaps a bit finer, their sail plans a trifle larger, and their rigging neater than those of their working contemporaries, but they were turned out by the same yards that built the sloops and schooners that had to go out and make a living for their owners. Each section of the coast developed its own type, the local working boat having a great influence on the design of the local yacht. Such craft as the famous Hudson River sloops had considerable influence on the yachts of the period, as did the splendid New York pilot boats. The noted *America* herself was a glorified pilot schooner. Incidentally, a study of her model today will reveal a remarkably "sea kindly" form.

But fashions in yachts, as in feminine headgear, change with the years. The tonnage rules, which were first invoked to permit yachts of different size to race together, proved unsatisfactory and other measurement rules were evolved. With the advent of rules taking into account such elements as length and sail area instead of custom house tonnage, the scientifically trained naval architect entered the picture. Though at first rather contemptuously looked upon by the older rule of thumb builders, it was soon found that the designers' boats were just as able and seaworthy as those of the old timers, and usually distinctly faster. As loopholes in the measurement rules were found, the naval architects took advantage of them and soon gathered into their hands the designing of the greater part of the yachting fleet. The racing yacht soon became a type quite different from the cruiser, and the type altered with each change in the rating rules. Experiments with the racing type have taught us much that has been taken over into the design of cruisers, until today the yacht and the commercial windjammer have little in common.

In the eighties of the last century, and earlier, the yacht was a big fellow, usually a 100-foot schooner or a 60- or 70-foot sloop; anything below fifty feet was little more than a sail boat, fit only for afternoon use. Hardy souls did cruise in smaller boats — indeed, W. P. Stephens went to the Centennial in a canoe which he had built himself — but in comparative discomfort. Thirty-six feet water line length was the smallest craft that gave her owner a vote in the affairs of the New York Yacht Club. Cooking gear was crude, plumbing practically non-existent and accommodations simple. And few men built a new boat each year; when the old yacht was outbuilt, she was hauled out and lengthened and given a new lease on life. This habit, by the way, carried over into the days of iron and steel, for *Emerald* was lengthened once and deepened once, and *Volunteer* was lengthened and rerigged as a schooner a few years after she had defended the America's Cup.

The sloops of the day were big, powerful boats with a tremendous spread of canvas that needed a strong-handed crew to fist it. The famous "Fighting Forties" were rather well down towards the bottom of the fleet in size. But rising costs, both of construction and maintenance, made the big fellows more and more of a drain on their owners' pockets and the racing yacht showed a tendency to become smaller each year. Small fry, such as the half-raters and one-raters, grew in popularity, though expensive light construction soon turned even these little fellows into machines with piano finish and costly gadgets. In the nineties, while good sized schooners were still racing, they came out in decreasing numbers each year, smaller craft, such as the famous New York Thirties (1905), furnishing red hot competition in class racing.

Another recent development is "Conquest," an Alden 40-footer. She is driven by a Kermath engine working through a reduction gear

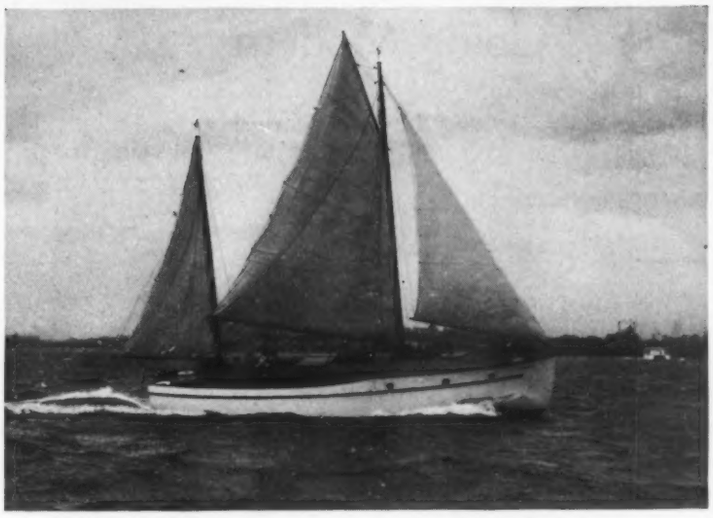
Thirty-five years ago, the auxiliary began to appear, though the owners of the first ones were a bit apologetic about installing engines in their boats. For the big fellows, steam was the chosen motive power, the early heavy, cumbersome, slow-turning gasoline engines being confined to the smaller fry. Gradually the modern internal combustion engine has pervaded the fleet until now the yacht which depends on the winds alone is something of a rarity outside of an out-and-out racer. Even a class of racers like the Seawanhaka schooners was fitted with small auxiliary motors.

As we look back at them today, the first motor boats were crude and unreliable craft. Since their advent, while the design of the sailing yacht has changed comparatively little, the motor boat has been revolutionized. Look over the old files of this magazine and see what queer contraptions the builders and designers produced in the early nineteen hundreds. The fast ones were toothpicks — narrow, low-sided, cranky, and as wet as a half tide rock in any sort of a slop. The cruisers were mostly pot-bellied tubs that rolled and pitched abominably and behaved badly in any but the best weather. And what queer bows and sterns they had! But they have improved steadily in design until nowadays the average motor boat cruiser is a well designed craft of good appearance, with compact cabin and a fine, reliable power plant. From the tabloid variety to the seagoing cruiser, she is a credit to her designer and builder. Much thought has been given to her and she has been refined and improved through the years.

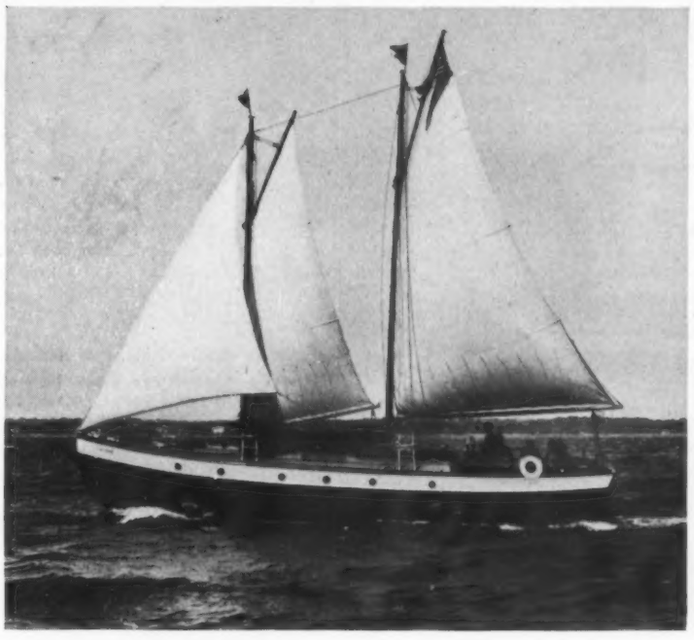
But she has one serious defect: it is impossible to turn out a small boat that will have the slow, easy roll of the big ship. Even if this could be done with a certain distribution of her weights, the shifting of the weight of one or two of her crew would destroy her balance and alter the rhythm of her motion. Even the best of the motor boats have a quick, jerky roll that before long tires all hands. Those who served afloat in the submarine chasers during the war will remember the discomfort caused by their constant motion in any sort of a seaway. The monitor has something of the same bad habit. A real ship will have a varied motion, with a roll and pitch combined, that is different from one wave to the next; the monitor has a steady pendulum-like roll that tries the souls and stomachs of all on board. The continual roll of the motor boat, with its swift swing from one side to the other and the sudden stop at the end of the period, is annoying to the most hardened of sailormen. It is as different from the easy surge and swoop of the sailing craft as the jolting of a springless cart on a rough road is from the motion of a well-built car on a cement highway.

As late as forty years ago, Transatlantic liners carried sail, not only as a safeguard in case of damage to the machinery, but to steady the ship and give a little extra push in a strong, favoring breeze. Also, by keeping down excessive rolling, the propulsion was made more efficient and the ship a trifle faster in rough water. Seagoing tugs still carry sail for steadying them in a beam sea when without it they would roll deeply. Some of the earlier motor boats, like those which raced to Bermuda and Havana thirty years ago, carried small rigs for use in case of a breakdown or for steadying purposes. But probably they would not have done much under sail alone and they certainly could not have gone to windward at all. The average motor boat nowadays depends entirely upon the engine for propulsion and the modern internal combustion engine is such a sturdy, reliable machine that it rarely goes wrong. Sails are seldom fitted to an out-and-out motor cruiser. Owners continue to put up with the quick rolling of their boats and seem to think that nothing can be done to improve performance in that respect.

In recent years, many sailing men have turned to the motor boat. Their time afloat is often limited and they have grown tired of spending windless nights rolling outside of some snug harbor that would be within easy



Gordon Munro designed "Jean" in 1924. She is 40 feet over all



"Cheerio," a 37-footer with a Palmer motor, is a duplicate of "Rusugeo," designed by C. D. Mower in 1920

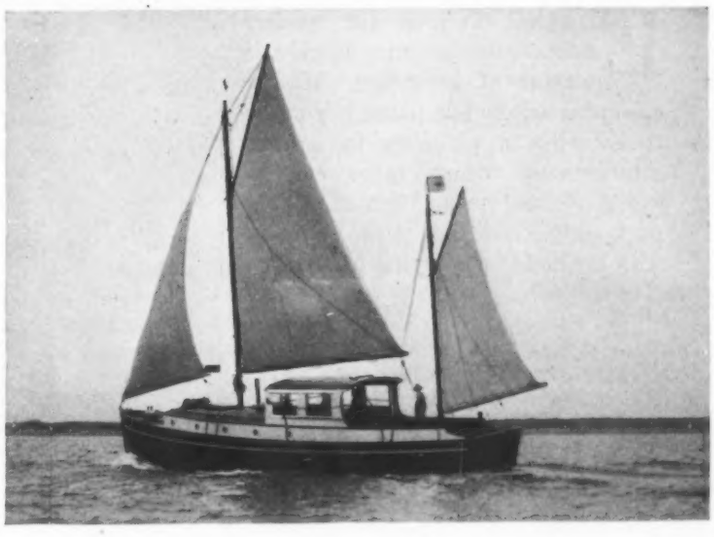
reach with a little power. To some of these men, the auxiliary makes her appeal, but they find that it is not always easy or convenient to get a crew to handle the sails and they like to get into port when they plan to, without being entirely dependent on the vagaries of the wind. They do not like the uneasy motion of the motor boat, nor her complete divorce from sail, and they are ripe for an intermediate type of boat with, as far as possible, the good points of both sail and power, and one that can be handled by a small crew. They still like to take advantage of a fair wind even though they no longer appreciate the joy of a day-long thrash to windward with a freshening breeze and a rising sea. To them, the motor-sailer is an attractive type.

In 1920, Charles D. Mower designed *Rusugeo* for G. B. Farnsworth, of Cleveland. She was 37′ over all, 32′ on the water line, 11′ 6″ beam, and 5′ draft, rigged as a baldheaded schooner with gaff fore and main. She was built by Post, of Mystic, and Dr. Farnsworth did considerable cruising in her. On one occasion she was caught on a lee shore with a crippled engine. Sail was made and the boat clawed off in fine style. Since then she has had several owners and was last heard from in Papeete, Tahiti, on her way around the world with her present owner, Henry Blanco, and his nine-year-old daughter. Her engine has been removed and she is making the voyage under sail. G. H. Townsend's *Cheerio* was built from the same plans, as was a third boat.

Gordon Munro, of Boston, designed *Jean* in 1924. In above-water appearance she seems an everyday raised deck cruiser with a moderate ketch rig. Below water, however, she is worked out more on sailing yacht lines and she can go to windward when asked to. *Jean* is 39′ 11″ long over all, 37′ 11″ on the water line, 11′ 4″ beam, and 4′ 2″ draft. She is ketch-rigged, with gaff-headed main and jib-headed mizzen, and no bowsprit, spreading 540 square feet of sail. Like *Rusugeo*, *Jean* has an open cockpit, without shelter for the helmsman. *Nancy R.* and *Harbinger* are two more from this designer's boards, the former looking, as one observer says, like a motor boat with a tall Marconi rig. That she is smart is evidenced by her racing record. In the Gibson Island race of 1929 she took second prize in her class, and she finished fifth in the fleet in the Bayside-Block Island race that same year, an event in which only half the fleet finished.

In 1928 William H. Hand, of New Bedford, brought out the motor ketch *Water Witch*, designed for his own use. She is 46′ over all, 13′ beam and 5′ draft. Above water she resembles a motor cruiser with a long trunk cabin and a shelter amidships

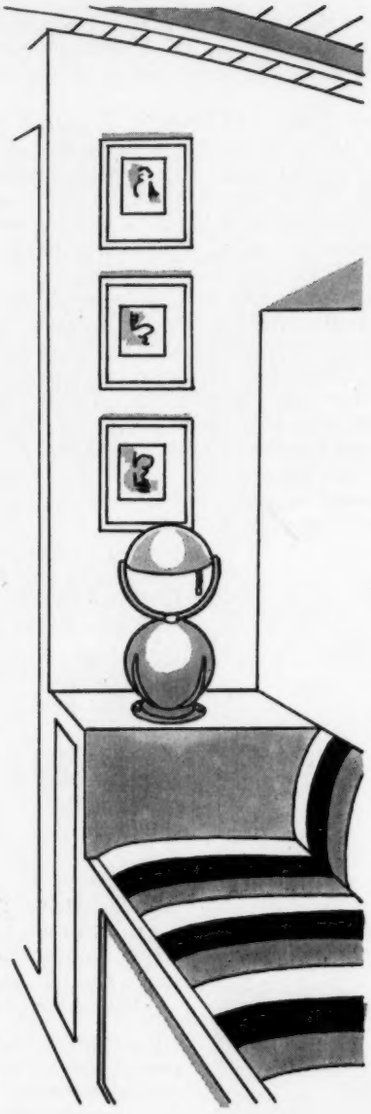
(*Continued on page 82*)



"Water Witch," 46 feet over all, came out in 1927. She was the first of a number of motor-sailers designed by William H. Hand, Jr. A 6-cylinder Sterling drives her

Going Modern

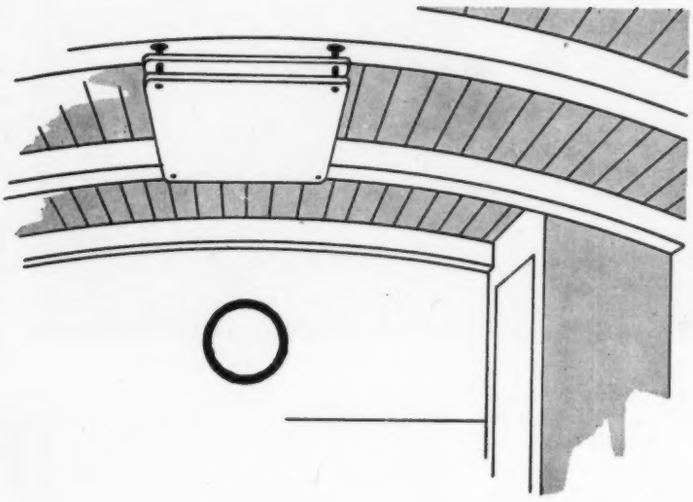
V. Lighting the Power Cruiser



By LOU BLOCK

LIGHTING fixtures for modern boat interiors are largely a matter of invention. Modern designing ashore has found it possible to establish a pliability in lighting arrangements which takes care of every possible need. Most of the department stores are now equipped with facilities for carrying out a light-

Right. A wall fixture, of which many practical varieties are available. This one has three disks of clouded glass in graduated sizes set into a chromium holder. The light behind is sufficiently shielded to avoid glare

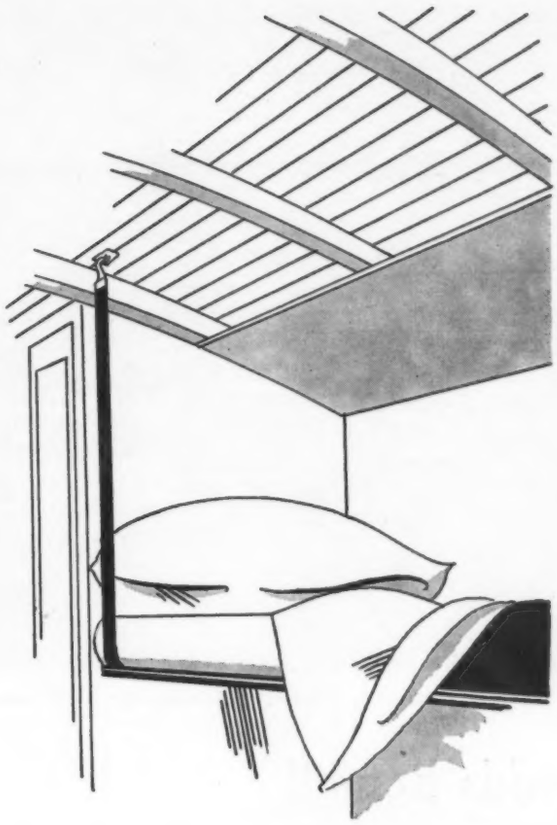


An overhead light where there is sufficient headroom. Two squares of clouded glass attached to the beams with brass or steel, as shown here, and with a cluster of three or four bulbs close to the roof, will throw a soft and agreeable light

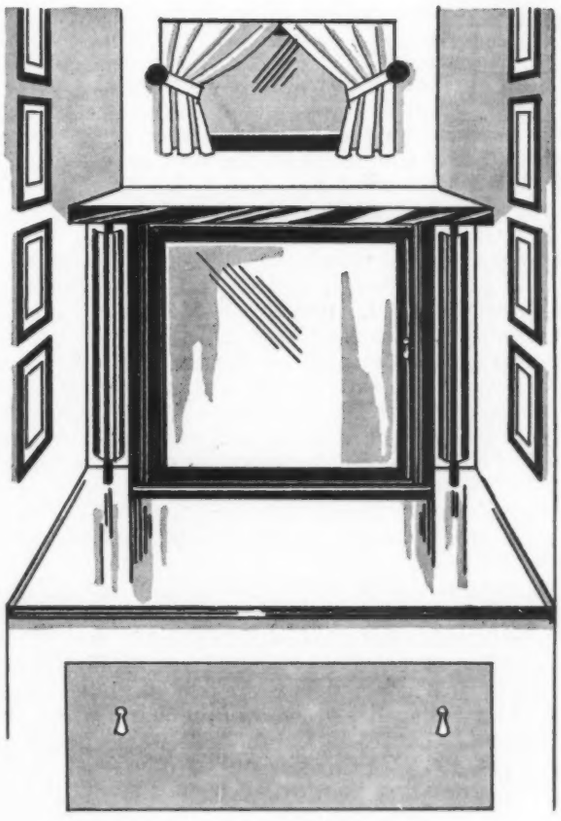
Left. An attractive lamp for use near a settee or berth. It is entirely of chromium steel, and with the additional segment at the base can be screwed down. The ball turns readily, and the arc and shield can also be adjusted to any desired position

ing scheme harmonious with modern designing, as are also many specialty shops which cater to decorators.

In including suggestions for lighting in this series, we have the problem of avoiding the expense which specially manufactured fixtures would involve. A survey of standard appliances which are inexpensive, and can be adapted for use on boats, is the basis for the suggestions shown in the drawings here. These sketches represent, in composite form, those appliances easiest to procure, and easiest to adapt for cabin lighting.



A suggestion for indirect overhead light. Where the depth of the roof beams permits, a series of bulbs, one or more between each beam, and shielded as shown here, will project a very pleasant light into the cabin



Lighting a dressing table with two tube lights installed in recesses on each side of the mirror. A half-round shield of polished metal mounted on swivels allows either direct or reflected light

A built-in light for the head of a berth. A quarter-round section of clouded glass, with chromium ends, about eight inches in length, is used here with good effect

Power cruisers of every description lying at the Halifax River Yacht Club, Daytona, on their way to spend the winter in Florida

Florida Bound!

Retouching the Picture of the Intra-Coastal Canal for Those Cruising South

By GEORGE E. ANDREWS

PROBABLY no stretch of water on the whole Atlantic coast is as important to the power boat owner, or is as much used between the months of November and April, or May, as the chain of canals, rivers and bays that parallels the Florida coast from Jacksonville down to Miami, and which has been connected to form what is generally known as the inside passage. It is a great protected highway for the fleet of northern boats that makes the trip south each fall and returns in the spring, as well as a convenient water route connecting, in its entirety, both coasts of the Florida peninsula.

But as the Federal Government, through the U. S. District Engineers' Force, is constantly improving and deepening this popular channel, it is necessary frequently to retouch the picture if one wants to keep abreast of the almost constant changes that are taking place along this much used Florida Intra-Coastal Canal. Uncle Sam, for once, seems to be "stepping on the gas," and work is proceeding rapidly on the completion of the project to make this a first class water route that will be of much greater value both to pleasure and smaller commercial craft than it has been in the past, when certain portions of the route were difficult of navigation by even the smallest of cruisers.

Just what will northern yachtsmen who take their boats south along this portion of the intra-coastal waterway find as a result of the constant changes brought about by the work that is now being done on the canal? This question is one that will be in order for at least two years more, or until the proposed work is completed. But those of us who live in Florida and have had to put up with adverse conditions on the waterway for many years, think that what has already been achieved is pretty fine, and that navigation has already been improved to a great extent.

In order to get the very latest news of the condition of the route I have recently covered the entire length of the waterway from St. Augustine to Miami, and what is written here will probably hold true over this winter. After next summer's work by the dredges and steam shovels it may be necessary to bring this article up to date and to chronicle the finish of the project, at least as far south as Biscayne Bay. In gathering this latest information I have been helped by, and have enlisted the interest of, Colonel G. A. Youngberg, Chief Engineer in charge, in order to check my own observations. The following information from his office is furnished as of October 1st, 1933:

"Begining at the St. John's River, and extending to St. Augustine, a distance of 39 miles, the dredged channel varies in width from 70 to 100 feet and in depth from 5 feet to 9 feet at mean low water. The controlling depth of 5 feet is located about one-and-one-half miles north of the Palm Valley Bridge (shown on chart) where the tidal range is about 3 feet. Proposals were opened on October 4th, 1932, for dredging the 23-mile reach of the waterway extending southward from the St. John's River to full project dimensions, *i.e.*, 100 feet wide and 8

feet deep. Dredging is already in progress from the northerly end and southerly end of this stretch and the work is expected to be completed about January 15th, next.

"From St. Augustine to the south side of Matanzas Inlet, a distance of 18 miles, the controlling depth is 8 feet with a controlling width of 100 feet. All the dredging required under the project for this reach has been completed. On the reach from Matanzas Inlet to the Halifax River work was begun about October 10th, 1933, and there will be one or more dredges at work here this winter. From Matanzas Inlet to Fox Cut, maintenance dredging on the 5-foot project has been completed. Tidal variations range from 4 feet to 1.5 feet at Fox Cut.

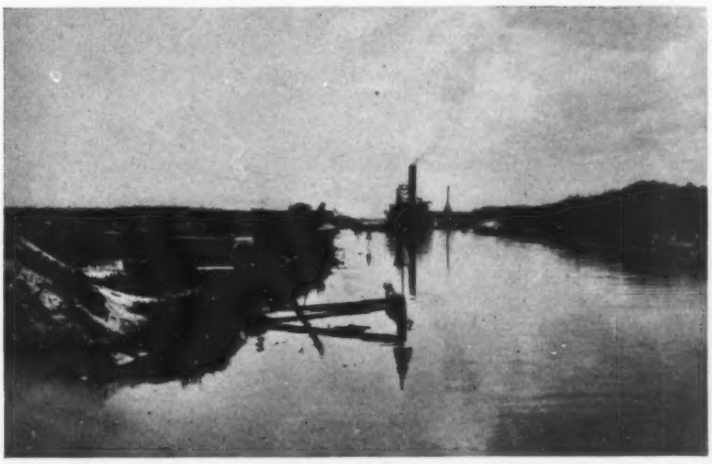
"From the north end of Halifax River to Ormond Bridge, the channel has been re-located, providing a channel 8 feet deep and 100 feet wide. At Ponce de Leon Inlet, a by-pass channel 3.8 miles long has been dredged. This channel was completed on March 10th, 1933, and has already been marked by the U. S. Lighthouse Service.

"From New Smyrna to the Haulover, 28 miles, the controlling depth is 5 feet with an available width of 100 feet. Throughout Mosquito Lagoon to the Haulover (an old Jonah), a channel has been dredged 8 feet deep and 100 feet wide. Construction was started last winter on a 13-mile relocation channel extending along the west shore of Hillsborough River from New Smyrna to Mosquito Lagoon. Two dredges are now employed and this channel is expected to be completed about November 15th, 1933, (in one month from this writing). Speed limitation of 10 miles an hour has been established. From the Haulover to St. Lucie Inlet, 120 miles, the dredging of the 8-foot by 100-foot project was completed in April, 1932, and now obtains.

"On October 1st, 1933, approximately 77 miles of the waterway remained to be enlarged to project dimensions. All this dredging is now under contract and is scheduled for completion during the fall of 1934. Eight dredges are now employed and additional ones are being added under the more recent contracts provided by the National Industrial Recovery Act. The U. S. Lighthouse Service is now engaged in establishing channel markers and buoys to indicate the dredged channels. The recently completed channels through Biscayne Bay have been marked by pile markers, and additional markers and buoys are being placed throughout the waterway, as required, to indicate the newly dredged channels as completed."

Colonel Youngberg also states that some of the dredges will be very large so that the larger yachts of considerable beam may have difficulty in passing. It is probable that such large yachts would do better to take advantage of the weather and go down outside. After seeing some of these dredges I fully concur with Col. Youngberg. The going will, I think, be all right for the smaller craft of thirty to forty feet in length, and, in any event, the visiting yachtsman will find the greatest courtesy in helping him past any dredge that is encountered on the 350-mile run through Florida. For the small cruisers it means only a little delay and some care in getting by.

The huge dredge *Norman H. Davis*, which has been working just south of Port Everglade, has been moved



A dredge working in the Florida Intra-Coastal Canal at Pompano. It is sometimes difficult to pass these large dredges. Top, right, a picturesque reach of the old canal. At right, the deepened and widened channel in the foreground, and in the background the old narrow canal before being improved

A snug berth on the Florida inland waterway at Port Everglade, on the New River, near Fort Lauderdale

to just south of Pompano. The *Tampa* is just north of Boynton. Both of these powerful dredges are certainly mud slingers and cover a great distance daily under normal conditions, so that their exact position at any given moment cannot be given.

I understand that the additional diggers which will be put to work will be of equal or greater capacity and it will not be long now before the old enemies of the cruiser, oyster bars and sand flats, will be a thing of the past and no nearer the surface than 8 feet.

Those who have been over the route in the past will observe great changes for the better in all the channel markers. The finger posts are more massive, better painted, and spaced closer together. In the old doubtful places, where it has been found impossible to keep a stake in position on account of rock or by reason of large houseboats dragging them under, these stakes have been replaced by can buoys, red and black. These buoys will be noticed throughout the length of Mosquito Lagoon and just above Fort Pierce. All markers as now placed will probably remain until the entire route has been brought up to the specifications of 8 feet depth and 100 feet width.

In many of the old crooked places, where turns were sharp, the channel has been straightened materially—in fact, some of the stretches look as if shot with a transit.

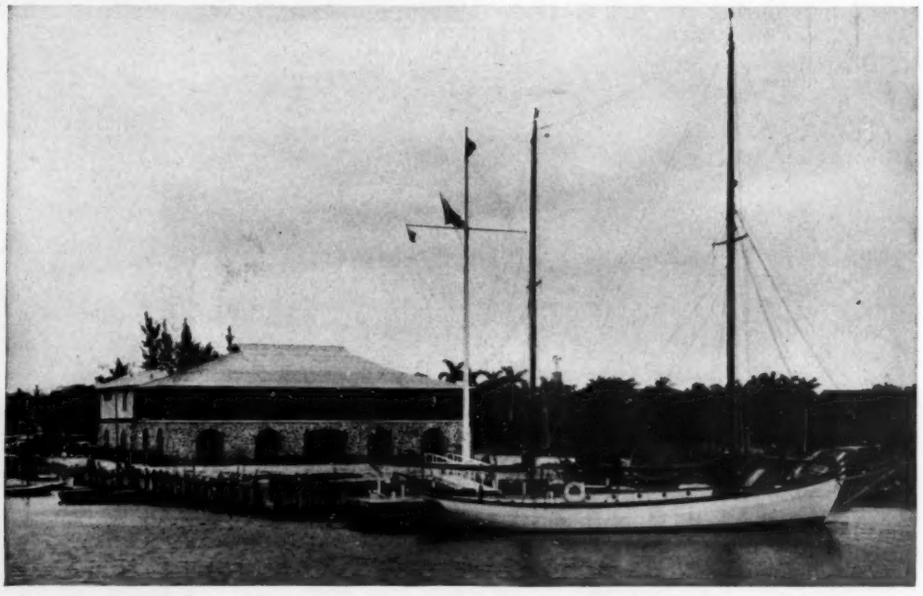
Florida has always been noted for the good service it offers, and especially for its service to yachtsmen. This latter has been rendered even better. It would be hard to find more adequate facilities for the care of the cruiser than will obtain this winter. Naturally, some places are better than others, owing to conditions of approach, etc., but as a rule, from St. John's River clear through to Miami, everything needed can be quickly and conveniently obtained. Sometimes, repairs are needed and the places where they can be obtained are many. At Daytona, is the Matthews Boat Works. George Gimgras is at Rockledge. The Eau Gallie Boat Basin at Melbourne will be found convenient. At Fort Pierce will be found the Backus Boat Works. If a run is made up the St. Lucie River a brand new plant will be found there. At West Palm Beach there are a number of places for repairs. At Lantana, nine miles south of West Palm Beach, the Clive Merchant Company are operating a fine plant with capacity to haul anything that is likely to visit these waters. At Fort Lauderdale there are several good places, and at Miami, the end of the journey, the yachtsman will find anything he needs in the way of facilities for hauling, painting or repairing.

The inside route charts covering the Florida portion of the intra-coastal route are Nos. 3257–3258–3259 and 3260. You should get the latest. The U. S. Coast and Geodetic Survey office in Washington advises that the department finds it hard to keep the new editions up to date, so frequent are the changes made owing to constant improvement. Like all things, however, this condition will end some time — in fact, the end is now in sight — and then there will be nothing more to write about as far as the distance from the St. John's River to Key West is concerned.

Through all this protected water sailing of the inland route the large yacht will have a harbor wherever she drops her hook, but there are places on this run where the small fellow, of thirty to forty feet, would like to "smooth it," or, in other words, find a hole where quiet and peaceful waters abound no matter how hard the weather.

The minute the yachtsman leaves the Haulover,

(*Continued on page 76*)

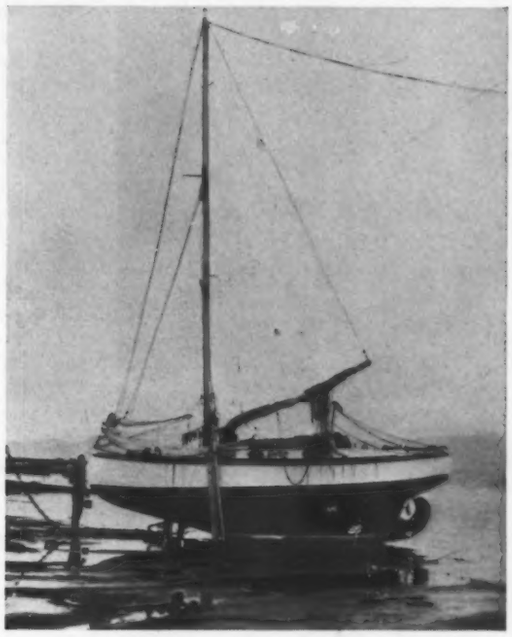


Near the end of the southward trail. Biscayne Bay Yacht Club, at Coconut Grove

"Ahto's" Fifth Atlantic Passage

By

THOMAS W. OLSEN



Ahto Walter, who has skippered his own boat across the Atlantic five times while still in his 'teens, and his 27-foot sloop "Ahto," beached for scrubbing in Vigo, Spain. "Ahto" is the Estonian name for Neptune, or god of the sea

THE young man of today does not have to sit at home romancing by the fireside; a few hundred dollars, a good shipmate, and a small boat can easily turn his romances into realization.

When I first met Ahto Walter, in Miami, Florida, after the completion of his first passage across the Atlantic from Estonia, little did I realize that just two years later we would be setting out together on a Transatlantic passage. Three days after our meeting we were bound for a cruise in the West Indies; before we separated we had made plans for a trip to Africa together.

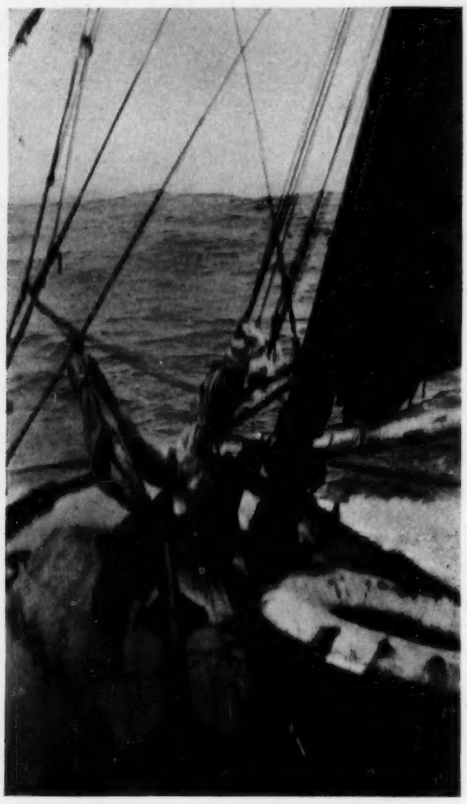
Two years elapsed before I finally managed to get away from my home in New York. Twenty-four days of travel landed me in Tallinn, Estonia, Walter's home city. It did not take us long to get underway; by November 27th we had all our gear on board and were ready to sail. First, let me give a description of the *Ahto*, for those who are not familiar with her, and read off her crew list. The *Ahto* is a double-ended sloop, Marconi-rigged. Her over all length is 27 feet, 6 inches; beam, 8 feet; draft, 6 feet. The iron keel weighs two tons. Below decks there are two bunks in the main cabin and two bunks forward of the trunk cabin. Aft, there is a small one-cylinder gasoline engine underneath the cockpit, and on either side of the motor there are water tanks holding one hundred gallons. The galley has given way to a 40-gallon fuel tank and the cooking is done on a primus stove on the floor of the cabin.

So much for the boat, and now for the crew. First, we have the captain and owner, Ahto Walter, who has to his credit five Transatlantic passages in boats under thirty feet in length, all five passages having been made in his 'teens. I signed on as mate, chief engineer, and bosun. The other members of the crew were Rudolf Sirge and Ewald Stein, Estonian newspaper correspondents.

It was very cold in Tallinn by the time we were ready to sail, and as the port is closed by ice several months of the year, we were anxious to set out for warmer climates. Sunday morning, November 27th, was chosen for the departure. As the people of Tallinn are greatly interested in Ahto's voyages, there were several thousand at the waterfront to send us off. The weather was anything but promising, but, with that crowd waiting, we had to sail.

The first day at sea was discouraging. Before we had left Tallinn Bay astern we had to take two reefs in the mainsail, and as we entered the Gulf of Finland we ran into a hard snow storm. By this time the newspaper correspondents had retired to their bunks. The cabin was cluttered with their belongings and to make matters worse, the oil stove was smoking so badly that we had to turn it off. On deck, things were no better. The binnacle lamp refused to remain lighted and the snow and cold spray were blinding. To battle against that wind and sea was foolish, so we put into the small port of Baltiski to await better weather. Our stay in harbor lasted six days; it was not until December 3rd that we left Baltiski during a lull in the storm, hoping that it would abate. But luck was still against us, and we were forced into port again after sailing only fifty miles. The storm came up out of the southwest again, so we put into Dago, one of the Estonian Islands. Our stay in Kardla, the port, lasted three days — a pleasant interval during which we were wined and dined sumptuously.

When the storm finally abated we sailed for Kiel, but our run was no pleasure cruise. We kept two-hour watches, and by the time the watch was up we were so cold that it was all we could do to get into the cabin. We were four and a half days making the passage to Kiel, and it snowed for three and a half of those days. On the night of December 10th we entered the mouth of the harbor. As we had no chart other than a general chart of the Baltic Sea, we tried to pass a lighthouse to starboard instead of to port, and, consequently, ran aground. The blame certainly does not fall on our captain; the snow was so thick that visibility was practic-



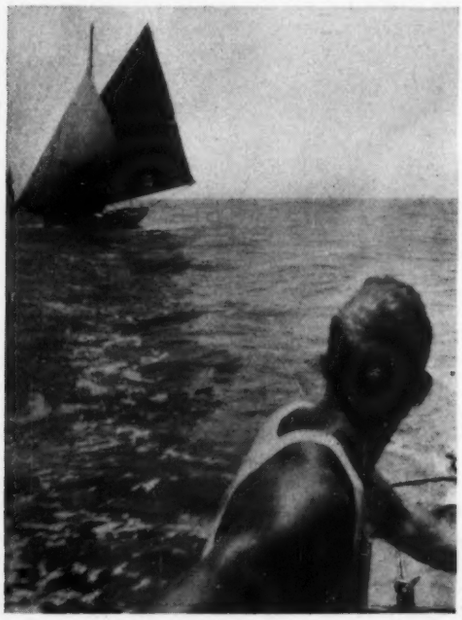
Slamming along with triple-reefed mainsail in a Bay of Biscay gale. Right, the "Enterprise" in company with the "Ahto," 700 miles off the African coast, before the "Ahto" left her astern to win an informal Transatlantic race from Bathurst to Sandy Hook in 50 days

ally nil, causing him to mistake the lighthouse for a lightship. It took the better part of two hours to get the boat floated again, and by that time we were all but frozen. Two of us had to stand on the end of the boom, immersed in the icy water, in order to keel the *Ahto* over far enough to get her free. We also had to shift water, fuel, and provisions before she floated.

We sailed the remainder of the distance into the harbor, dropped the hook, and prepared for a peaceful night's sleep. But a few minutes later we were boarded by a swarm of German officials, who routed us out of bed, made a thorough search of the boat, and ended up by confiscating all of our arms and ammunition. We had brought four rifles, five revolvers, a shot gun, and three thousand rounds of shot. The customs officers and harbor police were convinced that we planned to start a revolution in Germany, and our explanation that our arms were for a hunting trip in Africa was of no avail. With the help of the Estonian consul in Hamburg, however, our arms were returned and we were permitted to leave Germany in peace. Our trip through the Kiel Canal, where we met the coldest weather of the cruise, took two days, as we could sail only by day.

We put into the free harbor of Cuxhaven after leaving the canal and there waited for a change in wind before undertaking the next leg of the passage to London. Most of our stay was spent in waiting for weather reports, which all seemed to be alike in that they were unfavorable for a quick passage to London where we had high hopes of spending Christmas. After a wait of six days, we decided to set sail, hoping for a change in the wind when we were crossing the North Sea. But no change came, and we made the coast of England just north of Lowestoft. During the three days that it took to cross the North Sea we were in oilskins all of the time; it never stopped raining, except to snow. When we sighted Lowestoft we decided to put in to get some fuel in order to motor and sail the remainder of the way to London. It was good to get back to an English-speaking land again; up to this time Ahto had to do all of my talking for me.

On the morning of December 24th we left Lowestoft, hoping to make London the following day, and arrived



at the mouth of the Thames just after midnight, in time to reach London by Christmas night. But a heavy fog set in, and at five o'clock on Christmas morning we had to drop the anchor, only about forty miles from our destination. We could not see a boat-length in any direction, so the four of us wished one another a Merry Christmas and turned in.

The next day the fog was almost as thick, but we motored slowly up the river, keeping a bow watch on deck all day. As daylight faded the fog became thicker and we began to look for a place to tie up for the night. Suddenly, Tower Bridge appeared out of the fog, almost above us. Ahto quickly put the engine in reverse, and we just averted smashing the mast. After the bridge was opened we continued into the center of London and anchored for the night.

Leaving London on January 8th, we sailed down to Cowes, arriving there early on the morning of January 11th. Cowes was very different from the Cowes of Race Week. The only boat in the water was one belonging to Chris Ratsey; all other yachting was carried on beside the fireplace in the Island Sailing Club.

Fitting out kept all hands busy until January 28th. It was just our luck that England was experiencing the coldest winter in many years. The paint froze, and when we tried to wash down the sides the water would freeze. Moreover, we were frozen most of the time ourselves. On sailing day we found that all the water pipes were frozen solid, and the only way in which we were able to get water was to have the yard build fires along the pipe line to the boat.

We passed through the Needles at 5.00 P.M. and entered the choppy English Channel. By six that night it was blowing force six and we had to take double reefs in the mainsail in order to steer before the quartering seas. The following day the wind shifted around to the southwest, later shifting to west and then to northwest. We rounded Ushant on the morning of January 30th to enter the stormy Bay of Biscay. Ewald Stein, who had been seasick since leaving Cowes, appeared on deck while passing inside of Ushant Isle in sheltered waters. He took the tiller while the rest of us went below to have lunch. Ahto told him to put the life line about his shoulders, as we would soon be in very rough water. About an hour later I happened to look out of the main hatch just as a wave swept over the quarter. When the water had cleared off the deck there was no one at the tiller. In less time than it takes to tell we were all on deck. Ahto cut the boom guy and put her about while I attempted to start the engine. We could see Ewald splashing in the high seas. Every time that he disappeared behind a wave we thought it was the last we would ever see of him. But Ahto's excellent seamanship soon brought us alongside and Ahto passed a line over his head. Ewald was more dead than alive by this time and it took the three of us to pull him out of the water. Once we got him on deck, we pulled him into the cabin head first and proceeded to fill him full of rum while we took off his clothes. From the time he was washed over until we had him back on deck eight minutes had elapsed. If we had been ten seconds longer, we would have lost him. Undoubtedly, he owes his life to Ahto Walter's skilful handling of the situation.

We put Ewald into a bunk, bundled him up with blankets, and sailed on. The weather showed no signs of improvement and the watch on deck was wet all of the time. Our oilskins were soaked through and we sat with our feet in two feet of water in the cockpit, which had a bad habit of taking twenty minutes to drain. We changed the watches to three hours on deck and six below. And so the remainder of that afternoon and night passed.

The next day the wind shifted to the southwest and blew harder. At five that evening we put the third reef in the mainsail and lowered the jib. The wind and seas were steadily increasing and by midnight the wind had reached force eight. The next day, February 1st, dawned cold, cloudy, and stormy; all our clothing was wet by this time and it was so rough that it was impossible to cook. We would come off watch, sit on the cabin floor with a hunk of bread in one hand and a tin of fish in the other, and try to make the best of our meal. Ewald was still sick from his cold swim and his seasickness. He had had nothing to eat since we left Cowes and looked very ill indeed.

By 5.00 P.M. the wind had reached force nine and the glass was dropping steadily. It was useless to beat against such a strong wind and high sea, so we dropped the mainsail, put out the sea anchor, and rigged a small jib under the boom for a storm trysail. With this rig we rode the seas well, so we went below, lighted the primus and prepared for a night below. Except for being thrown into the trough of the seas several times by breaking waves, we spent a fairly comfortable night. Watches were kept, and the man on watch was able to sit in the cabin, looking out occasionally to see if all was well.

At seven thirty in the morning Ahto called me to say that we were going to make sail and attempt to reach the French coast while Ewald was still alive. So the mainsail, with triple reefs in, was hoisted, and we were soon dusting along at a good seven knots toward the coast of France. As Ahto had been unable to get any sights during the past few days, we hove to again that evening, as we did not want to make a landfall at night with only a North Atlantic sailing chart to follow. On the following night, February 3rd, we made the coast at Lorient.

The same storm kept us in Lorient until February 11th, when, with a good weather report from Paris, we set sail for Vigo, Spain. Before sunrise we had taken double reefs in the mainsail, and by breakfast time we tied in the third reef and dropped the jib. By late after-

Drying out on the way into Vigo after weathering a week of winter gales in the Bay of Biscay. Below, an odd storm trysail set during the height of the storms

noon it was impossible to steer before the high, following seas, so we dropped all sail and ran before it under bare poles at six knots. Later, a storm jib was hoisted to serve as a riding sail.

By six that evening the wind had increased to force ten; to make matters worse, there were bad cross seas running. We disregarded the course in order to keep the seas on the stern. The cockpit was swept with icy waves every few minutes. Sirge was at the helm and he lost courage when he saw mountainous seas come rolling up astern. Twice he left the helm to hang on, and the *Ahto* broached to at once. The second time he let go the cockpit grating was carried away and a seam was started in the stern from the awful twist of the huge wave. Ahto and I rushed out on deck to see if Sirge was still on board. We found him kneeling in the cockpit, hanging on to the boom with both hands. Sirge was so frightened that he was helpless, so I relieved him and he went below. He kept asking Ahto to do something. Ewald lay in his bunk, groaning terribly. Everything below decks was drenched, including the bunks and the blankets. We kept the primus going all the time and spent our watch below trying to dry our clothing for the next watch on deck. Ahto shortened the watches to two hours as it was unbearably cold on deck in wet clothes. The next day and night brought no change for the better and the cross seas became worse.

On the evening of February 13th, we sighted Cape Prior light — we had crossed the Bay at last. We rounded Cape Finnisterra the following morning and that night dropped the anchor in Vigo, Spain. It took several days to dry out; then there was painting to be done and a few small repairs to be made. Ewald had had enough by this time and was only too glad to pack his sea bag and catch the first train for home.

The stay in Vigo lasted three weeks and we were glad to put to sea again when all was ready. The next port was to be Funchal, Madeira, where we hoped to see Ahto's brother. It was easy sailing down to Funchal and we made the passage in eight days. Madeira kept us longer than we had planned. It was such a beautiful island and we were having our first taste of really good weather since the passage started, so we were loth to leave. Finally, on March 27th, we were underway for Las Palmas, in the Canary Islands.

A good passage was made to Las Palmas, and there we took on enough stores for the passage to America by way of Africa, and on April 4th we set sail. Early on the morning of the 6th I came on watch. One point off the port bow I sighted land — at least, I though that I sighted land. I changed the course to parallel the coast, and when day broke there was the sandy coast of the desert not more than two hundred yards abeam.

That afternoon we put into Rio de Oro, sailed up river to the harbor, and tied up to a Spanish warship, as we had no anchor. Ahto went on board to ask the captain if he would be kind enough to put us ashore in his launch, but he flatly refused and told Ahto that if we tried to venture ashore we would find ourselves in jail in short order. Villa de la Cisernos, the name of the small Spanish settlement, is the colony where Spanish political prisoners are kept. At that particular time they were staging an uprising, and we were careful to remain on board.

In the morning we started the engine and left Villa de la Cisernos. Sailing down the coast from Rio de Oro was most uninteresting, with one exception. While I was cooking breakfast one morning, Ahto saw seven small lateen-rigged boats put out of a little cove along the coast and make directly for our ship. Of course, this is nothing to become alarmed about, but we had heard a story about a small Swedish yacht which had been attacked off this same coast by Moorish tribes who killed everyone on board. These boats answered the description perfectly and all the boats were manned by Moors. Ahto shouted to me to come on deck with the rifles, revolvers, and plenty of ammunition. I roused Sirge out of his bunk, and together we took all the ship's weapons on deck to prepare for the attack. The Moorish fleet sailed very close, took a good look at us, and then changed its course, leaving us to wonder whether they had planned to attack, but found us too well armed, or whether they were only peaceful fishermen. However, we changed our course to keep well offshore and we did not sight the coast again until we passed Cape Blanco.

On April 8th we rounded Cape Blanco, and sailed into the harbor of Port Eitienne, a small French outpost in Senegal. It was just getting dark and all we could see were two small forts, an aeroplane hangar, a trading post, and the usual Moorish tents. It was too late to go ashore, so we had a bite to eat and then turned in. In the morning a tall blue-black Moor paddled out to the *Ahto* and told us that the captain of the fort would like to see us when we came ashore. He waited for us, then took us ashore in his boat, and escorted us to the fort, where we met the captain, the doctor, the lieutenant, and the man who ran the trading post. All told, there were thirty-five whites in the settlement, several hundred Senegalese soldiers, and about two hundred Moors.

We spent three days in Port Eitienne and would have remained longer had we not been pressed for time. But we wanted to do a little hunting up the Gambia River before the rainy season set in, and we had to hasten.

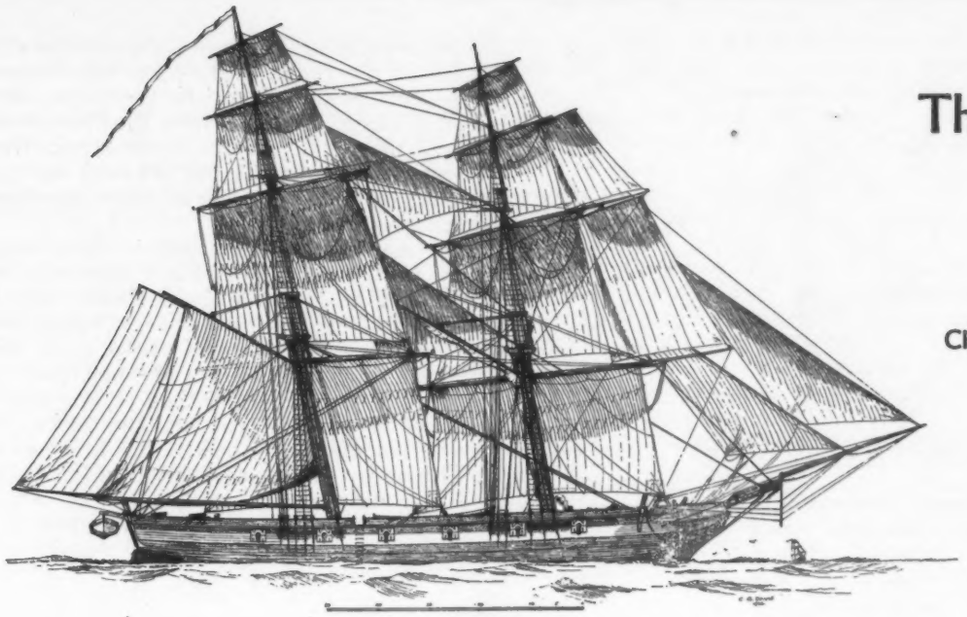
We set sail for Dakar, arriving there four days later. Dakar is the reputed Paris of Africa, but it was a sorry disappointment. While looking for a place to anchor in the harbor for the night we sighted C. P. Barber's 32-foot cutter *Enterprise* and tied up to her stern. Barber was not on board at the time and by the time that he had returned we were asleep. It gave him the surprise of his life to find the *Ahto* tied up to his boat in far-off Africa. He came on board shouting greetings, and we turned out and talked until daybreak.

We spent three days in Dakar, writing letters, sightseeing, and visiting with Barber, but we had to set sail again to meet an Estonian steamer that was to pick up some cargo in Bathurst, Gambia. Rudolf Sirge, the remaining member of our newspaperman crew, had had all of small boat sailing that he cared for and wanted to go home. As in the case of the first correspondent, we knew that Sirge would be no great loss and we did not want to miss the steamer for fear that he would change his mind. We bade Barber good-bye and left Dakar for Bathurst, arriving there twenty hours later. Bathurst is the capital of Gambia, a small British colony. It is situated on the southern bank of the Gambia, about ten miles up the river. Bathurst is a typical African town — a cluster of small frame buildings surrounded by huge baobab trees and palms. The whole town squats on the bank of the wide, muddy river and seems to be quite unmindful of the outside world.

The steamer which we had hurried to meet was 185 miles up the river loading peanuts, so we lay in Bathurst for five days awaiting her. In the meantime, Barber arrived on the *Enterprise*. When the Estonian steamer came Sirge left us, and one of the seamen from the steamer joined Barber on the *Enterprise*.

Two days later we started up the river on board the

(*Continued on page 88*)



U.S. 10 GUN BRIG PERRY. 1845

The Brig Rig

By

CHARLES G. DAVIS

ON THE days of the sailing ships, along in the 1800's, there was no other rig as popular as that of a brig. It was the handiest, trimmest and the most practical rig for a seagoing vessel of small size.

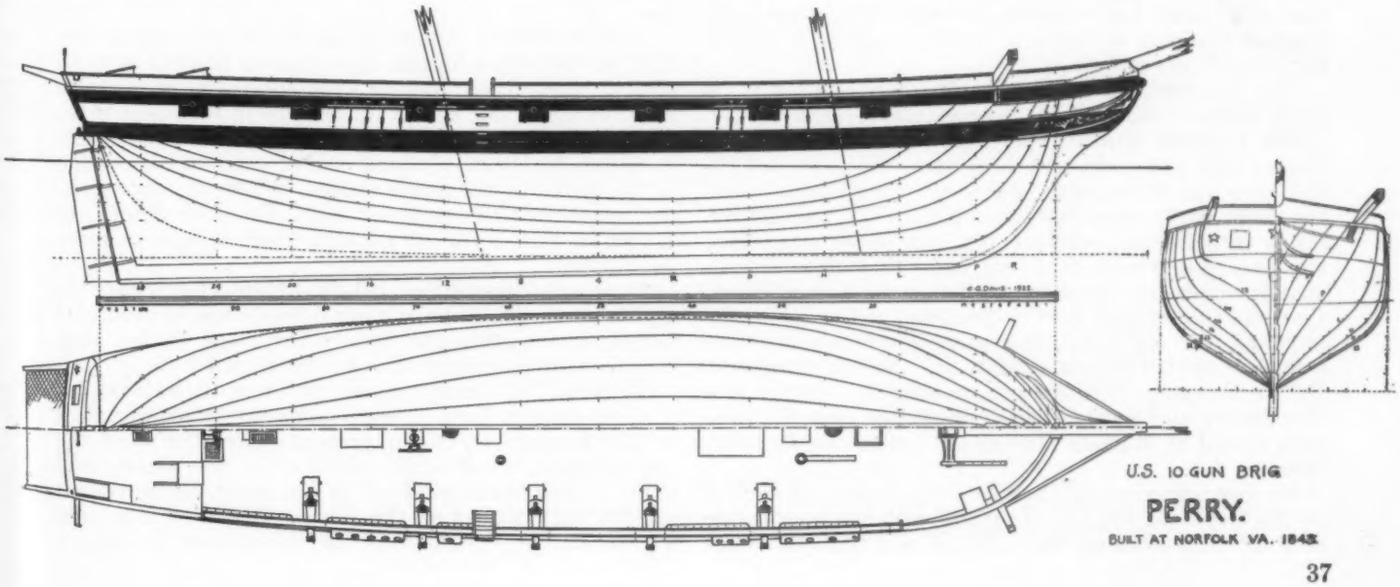
The sail spread of the brig being divided into many small squares of canvas made it easy to reduce sail to suit any strength of breeze, and the spars, being short sticks, made it easy to replace them or to carry spare ones on deck. This latter, in the case of brigs-of-war, was a most important point. Since these vessels were generally not over one hundred feet in length, their armament did not consist of very high powered guns and they rated so low in the fighting fleets of the various navies that their duty was usually more in the nature of dispatch boats. Commanded by junior officers, they were the hand-maids of the big 120-gun line-of-battleships and frigates of smaller rating.

In the merchant service colliers and traders were full-bodied, tubby little craft. But not so with brigs-of-war; their safety lay only in speed — in their ability to run away from a larger antagonist or to out-weather him. To make them fast, they were sharp-lined below water, round and tubby as they may have looked above water.

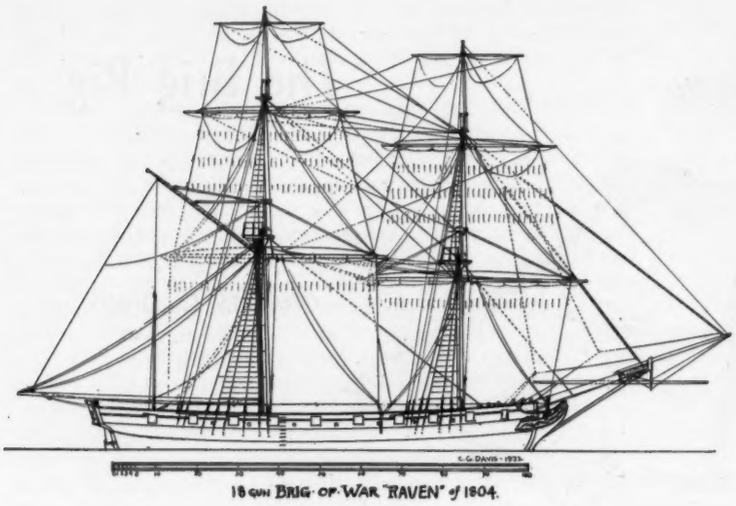
American histories tell that the merchants of Boston dispatched a sharp-built, fast-sailing schooner to Europe at the outbreak of the revolution in 1776 to warn ship captains of the danger of capture awaiting them on the high seas. But how sharp were such so-called fast-sailing schooners? The impression one gets from reading about ships of the past is that as we go back in years the vessels become more and more tubby.

To satisfy my curiosity on this point I collected considerable data on the subject and was agreeably surprised to find how beautifully modeled were some of the little brigs which date back as far as the revolution.

The privateer brigantine *Swift*, whose plans Mr. H. I. Chapelle dug up out of the archives of the British Admiralty and published in his book on the Baltimore clippers, is proof enough for anyone that even in those days (1775), though the fullness of body is forward of



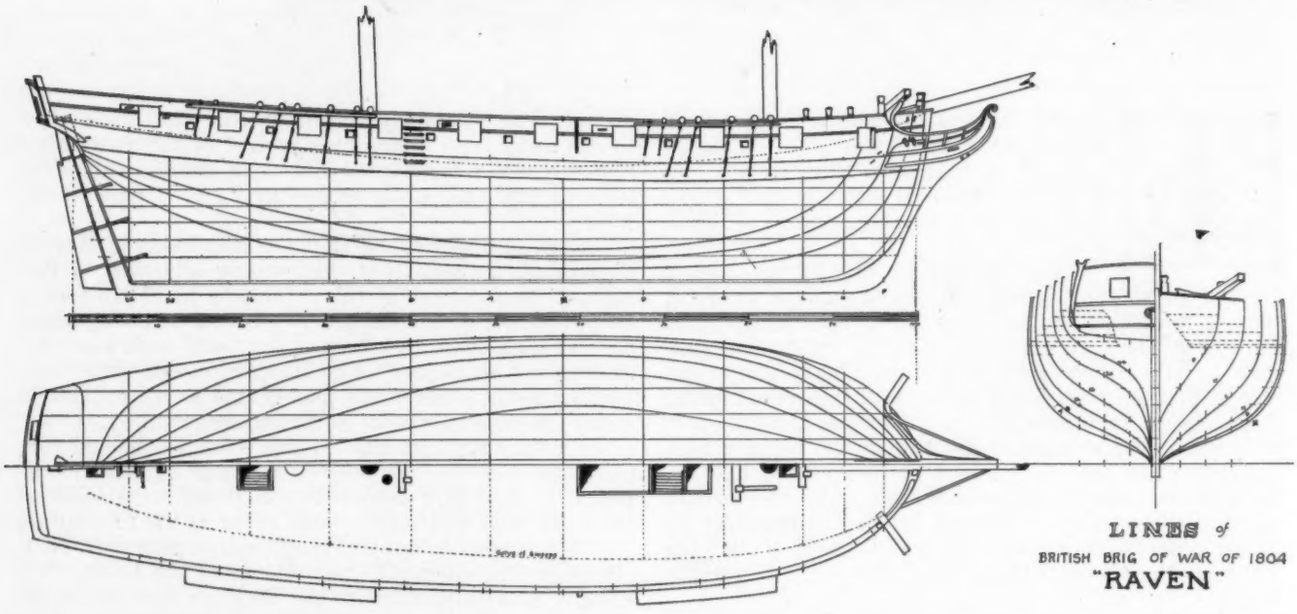
U.S. 10 GUN BRIG
PERRY.
BUILT AT NORFOLK VA. 1843



18 GUN BRIG OF WAR "RAVEN" of 1804.

tice to keep a plan as a record of every vessel in the British navy, and as the *Swift* was rerigged by the British and taken into the service as a full-rigged brig, her plans were thus preserved. The sail plan I have approximated from data on contemporary vessels and old rules on sparring such craft, showing her as originally rigged for privateering.

The 18-gun brig *Raven*, built in 1804, shows a very pretty set of lines for a brig only 100 feet in length, 30 feet 6 inches beam, and 15 feet depth of hold. She was one of many such brigs in England's navy of those days. Her roundness of form is due to the fact that she was designed by the old method of sweeping in the shape of the frames around the turn of the bilge with compasses, whose radius is shown on each frame by the horizontal dotted lines. And that they were evenly regulated so as to give the ship a fair form is shown in the deck plan



LINES of
BRITISH BRIG OF WAR OF 1804
"RAVEN"

the mid-section these boats were sharp-lined, fast-sailing models. The *Swift's* after body, her run, is as fine as that of a yacht, but whether she was a Baltimore-built craft or was built in England is still a matter of doubt, as what follows will show.

The Connecticut State brig *Defence*, mounting 16 guns, while cruising off the New England coast in 1777 under Captain Samuel Smedley, took several prizes loaded with provisions, clothing, etc., much needed by the American forces. One of these captured vessels was the snow *Swift*, taken on August 20th, 1777, and carried safely into Boston, where cargo and vessel were duly condemned and sold. While we know that often several vessels carried the same name, it is quite a coincidence that on January 3rd, 1781, as recorded in the American archives, the eight-gun brigantine *Swift* was commissioned to sail out of Salem, Mass., as a privateer against British shipping. She was commanded by Master Asa Woodberry and carried a crew of twenty men. She was then owned by William Homan, and others, of Beverly, Mass.

Having been captured by the British, she was docked at the Deptford Yard, in England, and her lines measured off on December 3rd, 1783. It was then the practice by a fair curved line, produced through these sweeps, whose length at each frame is set off from the centerline.

Such a method insures a fair body throughout the bulk of the ship's length. The various heights at each section where these sweeps were applied is shown also to be in a fair line by the dotted line in the sheer plan, which is termed the "height of breadth" line. A slight variation in either of these curves produces a change in the shape of the ship's frames. Where the sweep, or arc, made by the compasses ends, the floor shapes are drawn in with a curved pattern tilted around to meet each one.

Such was the method old-time shipbuilders used in laying down the shape of their round ships. It produced vessels whose grace and beauty surpasses, by far, that of any wall-sided type of vessel ever built.

England had many classes of these little brigs, of various ratings, from 18-gun to 10-gun brigs, and it is within the memory of the present generation when the last of them, the 10-gun brig *Martin*, was finally laid away to end the days of sail in the navy. These vessels carried such names as the *Raven*, *Weazel*, *Snake*, and *Ferret*. In the first half of the nineteenth century a

fleet of these fast-sailing brigs hunted down the slavers on the coast of Africa, and even across the Atlantic to Cuba.

Just as we, in America, kept in commission the little sloops-of-war *St. Mary* and *Portsmouth* for the training of young seamen, so did Great Britain keep her training brigs. I have met men who served their time on the *Martin* and on the *Flying Fish*, and have heard them tell how a brig would come sailing into the anchorage under a cloud of white canvas, from her royals to her hammock nettings. At the shrill "cheep" of a bo'sun's whistle, every stitch of canvas disappeared, being clewed up or hauled down, and in a few moments was stowed by an enthusiastic gang of young apprentices who swarmed out on every yard while the officers on the poop deck timed the length of the operation.

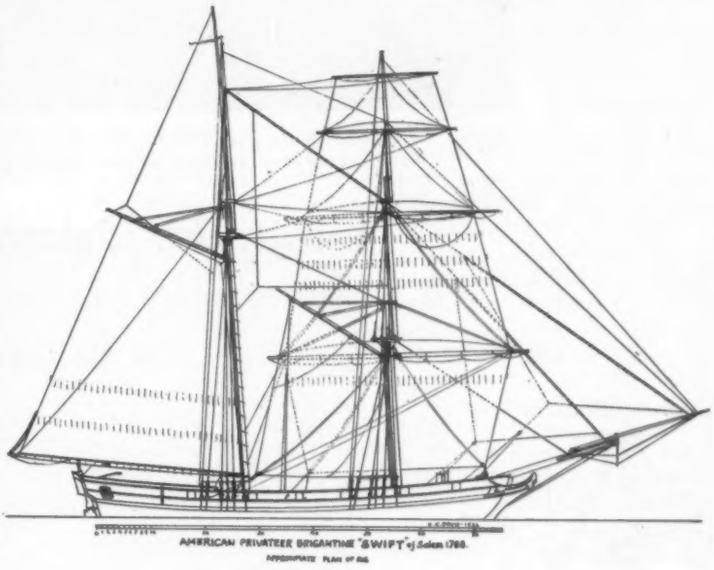
The early American brigs-of-war were undoubtedly a mixed lot of vessels. What their models may have been like we now have no means of knowing, but as they were all merchant vessels converted at Philadelphia into men-of-war, we assume that they were of the conventional type of that day. One of them, the *Cabot*, was captured by the British, and so we have a record of her dimensions. She was such a completely equipped brig-of-war that she was taken into the British navy.

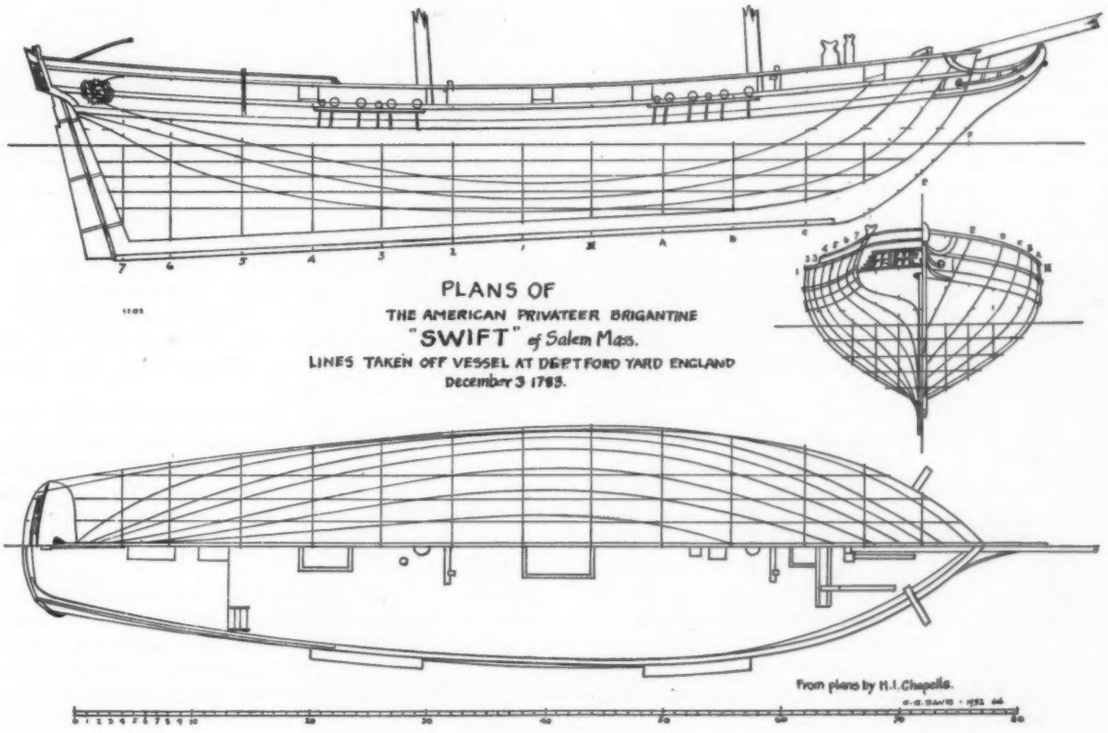
The dimensions of the *Cabot* were 74 feet 9¾ inches length on deck, 58 feet 7 inches keel, 24 feet 8 inches beam, 11 feet 4 inches depth of hold, and she measured 189 tons. She carried fourteen 4-pounders and twelve swivels, with a crew of eighty men.

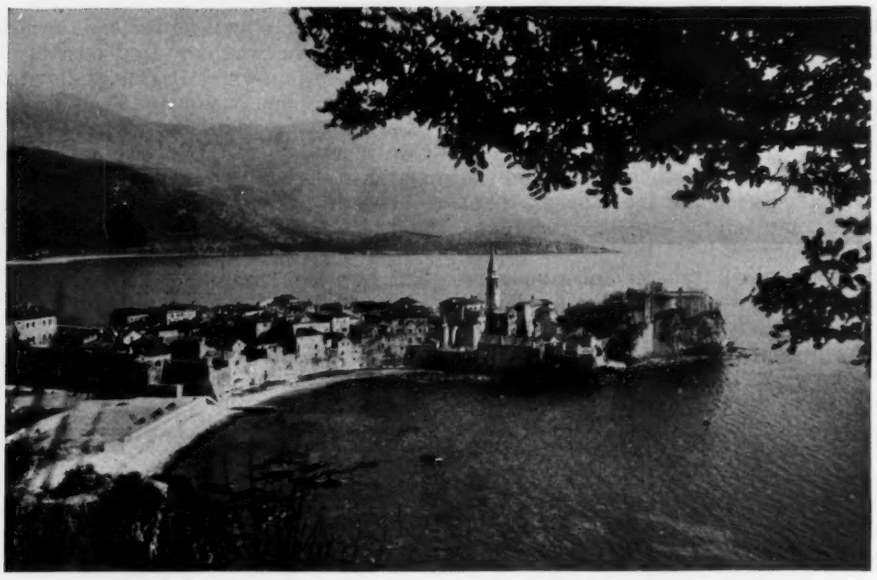
The captain of the British frigate *Glasgow*, which had an engagement in April, 1776, off Block Island with the small Continental Navy on its way to New London, deep-laden with munitions and cannon captured in a raid on the British naval supply station at New Providence, in the West Indies, describes the *Cabot* as a small brig painted yellow outside, with a white-painted figure of a man as a figurehead, and fitted with hinged port lids. She was captured on March 26th, 1777, by the *Milford*, a British frigate of 28 guns, after being run ashore on Cape Vision by Captain Joseph Olney, who escaped ashore with his crew. The other brigs in the Continental Navy then were the *Lexington*, *Andrew Doria*, *Reprisal*, and *Hampden*.

The first brigs built by the navy were the *Richmond* and *Norfolk*, constructed at Norfolk, Va., and the *Pinckney*, and the *Augusta*, constructed at Charleston. The first three were constructed in 1798 and were of 18 guns, while the last-named, built in 1799, was of 14 guns. Other brigs followed in 1803, when the *Argus* was built at Boston, the *Siren* at Philadelphia, followed by the *Hornet* and the *Wasp* in 1805 and 1806, at Baltimore and at Washington.

(*Continued on page 78*)




PLANS OF
THE AMERICAN PRIVATEER BRIGANTINE
"SWIFT" of Salem Mass.
LINES TAKEN OFF VESSEL AT DEPTFORD YARD ENGLAND
December 3 1783.
From plans by H.I. Chapelle.



Budva, jutting out into the blue Adriatic and with a white bathing beach on one side and a fine harbor on the other, is one of the most charming towns on the Dalmatian Coast

Down the Dalmatian Coast

"Marco Polo" Makes an Excursion from Dubrovnik into Albania

By BEN AMES

A WEEK in the gay capital of the Dalmatian Riveria and I began to think of the pleasures of rustic Albania. Of course, I was advised against it. But I had found a good crew for such an expedition into the wilds; Helen who said she crossed on the *Rex* because that ship has stabilizers, Charles who requires no blankets, doesn't care if he's wet or if he gets anywhere as long as he has six meals a day, and Margurette who is for anything if she doesn't have to wash dishes.

Our appointed sailing day arrived and with it a lively *Sirocco*. If there is one wind a Dalmatian hates it is the *Sirocco*, the south wind which invariably brings rain. They say that after it has blown for five days one is not held responsible for any murder one may feel it necessary to commit. The local boats and steamers decided to stay in port that day, but with our fuel and supplies on board we thought it inauspicious to postpone our start. "Crazy Americans," we could hear the dockside sages saying as *Marco Polo* pushed out into the head seas.

Once clear of the island of Locrum, one of the numerous places where Richard Coeur de Lion was shipwrecked, we plunged into the full force of the sea and had to slow to half throttle to keep from taking solid water on board. We soon had enough of it and put into the perfectly sheltered harbor of Cavat. In the fifth century, when Ragusa was a pile of rocks, Cavat, then Epidaurus, was an old and rich city. Very recently a road and railway have been built which failed to include Cavat in their course, so that now there is little for the town to do but wait for the tourists who come to look at the shiny, modernistic mausoleum. Everything we saw was through a heavy downpour. Our American flag drew all the "Americans" in town, over a dozen, all of whom had lived in California.

At a very early hour the next morning we sailed. Outside, the sea was still rather rough, and in an hour we put in to Little Port Molonta to cook breakfast, much to the disgust of the officials in this town of three houses. It seems that Little Port Molonta is heavily and secretly fortified. As far as we are concerned its fortifications are still a secret. We could have breakfast on board, and walk fifty feet — no more, we were instructed.

The Boka Kotorska — Gulf of Cattro — is one of the grandest bays in the world. Hemmed in by the towering mountains of the former Kingdom of Montenegro on the south and by the mountains of Dalmatia and Herzegovina on the north, it is, in fact, three bays in which the battle fleets of the whole world could swing at anchor. We rounded Point d'Ostro and entered the bay, leaving the squally weather outside in the Adriatic. The sun came out, we dried things out below, and drifted calmly in the bay while we ate lunch. The entrance to the third bay is through a narrow channel, the "Verige" — the chains. In the old days the towns of the last bay were amply protected from sea attacks when they stretched a chain across this entrance.

We skirted the deep shore line, passed the naval base at Tivat, the hand-made island with the church of Our Lady of the Chisel, and many little white stone villages crowding close along the shore. After the heavy rains the countryside looks green, but the mist-covered peaks are barren and gray, and the Locien, behind Kotor, is covered with snow.

Kotor is a dismal place in the rain; the eaves overhanging the narrow, shiny, cobbled streets, the arches, and even the disgruntled-looking stone Venetian lions over the gateways were dripping and wet. We soon left for Hercegnovi, fifteen miles at the other end of the bay, which we hoped to reach before nightfall.

I was boarded by a very pleasant young man in Hercegnovi. "I have read your stories in YACHTING," he told me. "I am going to buy a boat and I want to ask you about 'crutzing'." So as a first lesson I considerately let him carry gasoline and water up and down Hercegnovi's hilly, stone-stepped streets.

Hercegnovi has the finest market we had seen. The square is filled with brightly garbed peasants in Montenegran, Dalmatian, and Bosnian costumes, and with burros. There is nothing "western" about this market. In great excitement, the throngs haggle and bargain for what they want, pottery, cheese, figs, olive oil, poultry and other produce. In the jam, Helen got her traffic signals a little mixed while intent on photographing a cavalcade of burros and was almost run over by some others, to the enjoyment of everyone. The burros wander through the streets, followed by their owners, who beat them from behind instead of pulling them from in front.

The wide-spread Lake of Scutari is half in Albania and half in Jugo Slavia. The Bojana River flows out of the lake and 25 miles to the sea, forming, in its lower reaches, the boundary between the two countries. At the Albanian end of the lake is the city of Scutari, the largest town in Albania and the former capital. This was our goal. We had heard many conflicting reports about our being able to reach the city. There were rapids, there were whirlpools, there were fish nets barring the way. And if nothing else prevented us, probably the Albanians would.

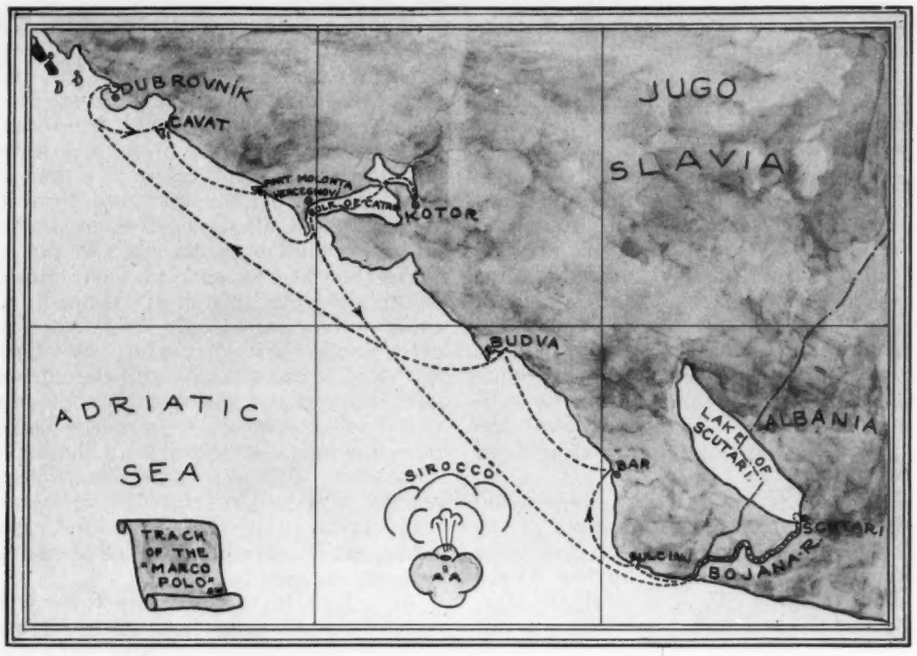
The weather was fine when we left Hercegnovi, the sea quiet, and after the slim continental breakfast at the hotel we had our real breakfast of hot cakes underway. We were anxious to make the mouth of the Bojana in fine weather, so we kept on a direct course down the coast. Off the low, sandy delta the water was a muddy brown for a mile or more. We had no chart of the bar, but an old salt in Cavat had told us to pass the first entrance, which was clogged up. A fresh northwest wind was blowing by this time and through the discolored water we could see nothing. Long-legged cranes standing on the low sandbanks helped to distinguish them from the muddy line of small breakers all about. We were cutting in, hoping to find the second entrance, when we saw a branch sticking out of the water to seaward. Doubling back and around it, we evidently made the channel, although several times we brought up only three feet of water. The channel, if you are in it, should have five. Once inside the bar, the river is broad and deep, the current sluggish. The river is attractive, with heavily wooded shores and occasional villages set back from the banks, and the surrounding hills are capped with the inevitable church or monastery. Washerwomen, knee deep in the water, energetically beat their clothes with large paddles, looking as though they had dressed for a masquerade, while white, skull-capped Albanians stared at us cautiously through the woods.

At a fork in the river we turned to the right and crossed the Albanian frontier, so far without formality, and tied up at dusk off what looked like a South Sea island village; grass huts, palms, pigs, and excited natives. We could not exchange a word, but they were very friendly and we showed them the boat.

At daybreak the officer in charge of the guard sent word (in Italian) that if we would leave at once he would not have to put an armed guard on board. He had heliographed our arrival to Scutari and would soon have his orders. We left.

The harbor of Hercegnovi, on the Gulf of Catro, with typical Dalmatian trading ships moored stern to the stone quay

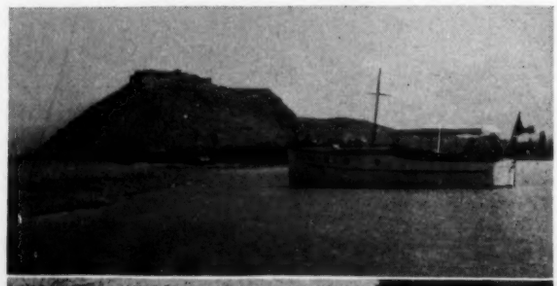
The Gulf of Catro, with its deep water and high protecting shores, could harbor the combined navies of the world

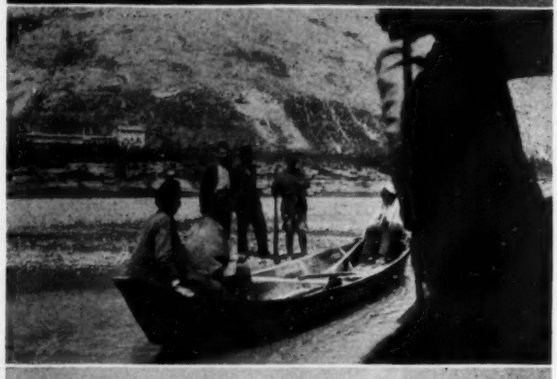


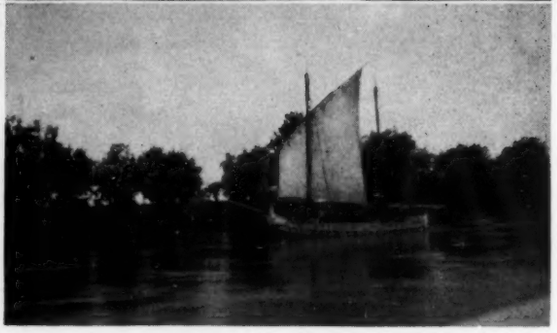
Off a sharp bend in the river we ran into our first whirlpool. It swung us to one side sharply, but no more. The river shoaled and we ran aground several times, but after her summer in the Danube, *Marco Polo* was used to this kind of going.

With the fortress on the hill over Scutari only a mile away, we took the wrong arm of the river and then ran out of gasoline. An obliging soldier who was bathing just there, dressed and offered to go for gasoline. "Put that map away," Charles said, "they'll think we're spies." We waited two hours for our soldier to return and then the police came. They had detained him. We were suspicious characters (*everyone* is, in the Balkans). Very peculiar, landing a mile from the port and sneaking in the "back way." No, we would not come to the police station until they brought us gasoline. At last they did (at a handsome profit) and we started for the "front way" to town.

The river swung around a giant boulder sharply to the left and there we ran into the grandfather of Bojana whirlpools. We tossed and rolled in the turbulent water and were just through the worst of it and on the outer edge when something cracked. I twirled the steering wheel, but with no result. The tiller cable had parted. Back we drifted into the whirling water — toward the bold face of the rock. We tossed the anchor over. Of course, it would not hold, but it kept our bow a little upstream. Again we pitched and tossed in the whirlpool, still going backward with the stream onto the rock. Then, just as it seemed inevitable that we should pile up, the back current on the inner edge of the vortex swung our stern off toward the opposite shore. I put the engine full astern, and clearing the boulder by a foot, we backed into a small mudbank. Later, we learned that this is a famous place. Several years ago a Lloyd steamer piled up on the rocks here, ripping her plates open and drowning seventeen persons.







"Marco Polo," top, anchored along the rugged shores of Lake Scutari. Albanian customs guards, middle, kept a sharp and suspicious eye on "Marco Polo" and her crew. Above, an Albanian ship on the River Bojana which flows from the Lake of Scutari into the Adriatic

Abdul, the dark-skinned pilot, and his assistant came around, and with two long steering oars over the stern we proceeded cautiously toward Scutari. "*Piano, piano!*" shouted Abdul. And I would slow the engine until he was able to work the stern around to head for the channel. We went through a barricade of piles set in the river to funnel the fish into nets. The opening through them is about eighteen feet

(*Continued on page 78*)

The Gloucester Fishing Schooner

Part II—The Development of the Gloucesterman from 1870 to 1895

By H. I. CHAPELLE

THE trend of the design of Gloucester fishing schooners during the period between 1870 and the early 1880's was toward such extremes of the so-called "clipper" type as were apparent in the *Grace L. Fears*. This vessel had all the characteristics of her type — low, hard bilges, low bulwarks, shallow hold and a large rig. She was built at Gloucester by David Alfred Story in 1874. On the same molds other schooners were built during the next few years, among them the *Bunker Hill*. The *Fears* is best remembered as the schooner from which Howard Blackburn became separated, bringing about the death of his dory-mate and his long row to shore, the result of which was the loss of his hands and toes from freezing. Such vessels as the *Fears* were popular in all classes of the fisheries, even on the Grand Banks, during these years.

During the eighties, Captain J. W. Collins, a Gloucester skipper, joined the United States Fish Commission and, conscious that much of the fearful loss of lives and vessels could be traced to the bad features of the type of schooner then in use, began to write on the necessity of a new class of vessel. The Gloucester newspapers carried this discussion in their columns and much argument resulted. The builders and modelers gave thought to the subject and, in 1884, the famous *Roulette* was launched at East Boston, by Dennis J. Lawlor. Lawlor was born in Nova Scotia and started modeling and building at East Boston about 1850. Though he had built a number of fishing schooners, such as the *Sylph* in '65, the *Sarah H. Cressy* in '66, and the *Helen M. Foster* in '71, he was best known as the designer and builder of pilot boats. In the same year that he laid down the *Roulette*, he built the great *Hesper*, long considered the fastest of all pilot schooners.

The *Roulette* was a sensation. Not only was she about two feet deeper in the hold and much sharper in the floors than any of her contemporaries, but she proved to be a very fast sailer and more weatherly than any schooner in the fleet. Though the *Roulette* was built for a Philadelphia firm, she usually worked out of Boston, and during the latter part of her existence was owned there.

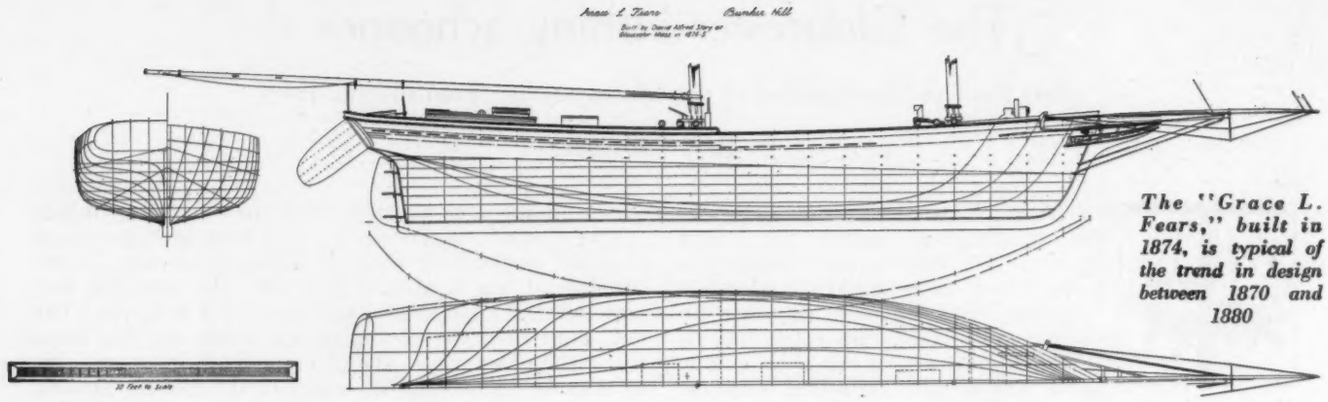
While the *Roulette* was building at East Boston, the other builders and designers were not idle. Captain Collins had been on friendly terms with Lawlor and with his help had modeled a new schooner for the Fish Commission, which was laid down at Noank, Conn., and launched the next year (1885). At about the same time, Arthur D. Story began to build a schooner on pilot boat lines at Essex. The *Roulette* had a plumb stem but also had a gammon knee head, which did not improve her appearance. The pilot schooners had been given plumb and straight stems for many years, and the two new schooners followed this style. The Fish Commission's new schooner was named the *Grampus* and was quite successful. The Essex vessel was launched about the same time as the *Grampus* and was named for her builder, *Arthur D. Story*. She was employed mostly as a Banker, going to Iceland regularly for cod. Eventually she was lost with all hands. It is said that she and another schooner were driven under, side by side, while under a press of sail.

The plan of the *Arthur D. Story* may be taken as an example of the new class of fishing schooner. Unfortunately, I am unable to find out who modeled her; perhaps Lawlor should have credit for her, too. The new pilot boat model fishing schooners had the same rig as the older boats; the change was in lines and size. It may be interesting to compare the vessels already mentioned. The *Fears* measured 84.50 tons net, 81 feet long, 22.9 feet beam and 8.4 feet depth of hold; the *Roulette* was 79.15 tons net, 82 feet long, 23.2 feet beam, and 10 feet depth of hold; the *Grampus* was 83.3 tons net, 81 feet long, 22.4 feet beam, and 10 feet depth of hold, and the *Story* was 98.61 tons net, 85 feet long, 23.3 feet beam, and 9.6 feet depth of hold. These measurements, it should be noted, are for tonnage and are not strictly accurate; however, they give a measure of comparison. It will be seen that there was a great increase in carrying capacity in the new vessels in addition to a change of form. The pilot schooner model introduced a new type of stern, as will be seen in the plans of the *Story*, which was popular for a few years. The success of the vessels built in 1884 and 1885 resulted in a number of "plumb stemmers," such as the *Puritan*, in 1887, and the *J. H. Carey*, in 1888, all fine, able schooners. However, a new vessel that was to mark the turning point in the Gloucester fleet had come out about this time.

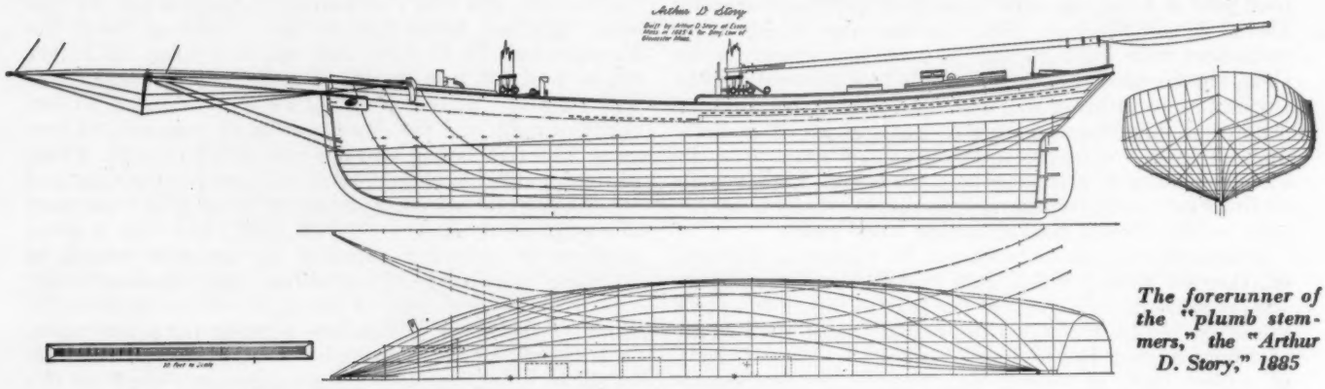
In 1886, Benjamin Phillips, of Boston, commissioned the rising young yacht designer, Edward Burgess, to draw plans for a fast, big schooner, and Arthur D. Story built her at Essex that winter. This was the well-known *Carrie E. Phillips*. She measured 109.99 tons net, was 93.5 feet long, 24.9 feet beam, and 11 feet depth of hold. The *Phillips* was an innovation in more ways than one and she was even deeper and with more rising floors than the earlier schooners; she had a more rockered keel than had yet been tried in a fisherman; she introduced many new features of masting and rigging, such as the spike bowsprit with a spreader through the stem, a short foremast and improved ironwork. She was one of the first, if not the first, fisherman to have wire standing rigging. There were changes on deck and below as well; the old double hatch forward was dropped, and so were the wooden catheads. Below, the forecastle was lengthened to give greater accommodation. The *Phillips*, in spite of her increased dimensions, was considered a small carrier; she lasted 12 years, "going lost" in August, 1899. This schooner had a big reputation for speed and was noted for her looks.

Among the major changes brought about by the advent of the *Phillips* was the bringing of the headstay to the gammoning iron, resulting in the disappearance of the big jib and the introduction of the modern double-headsail rig. She was, incidentally, one of very few fishing schooners out of New England ports that was painted white, in the yacht fashion, but, naturally, this did not prove very satisfactory.

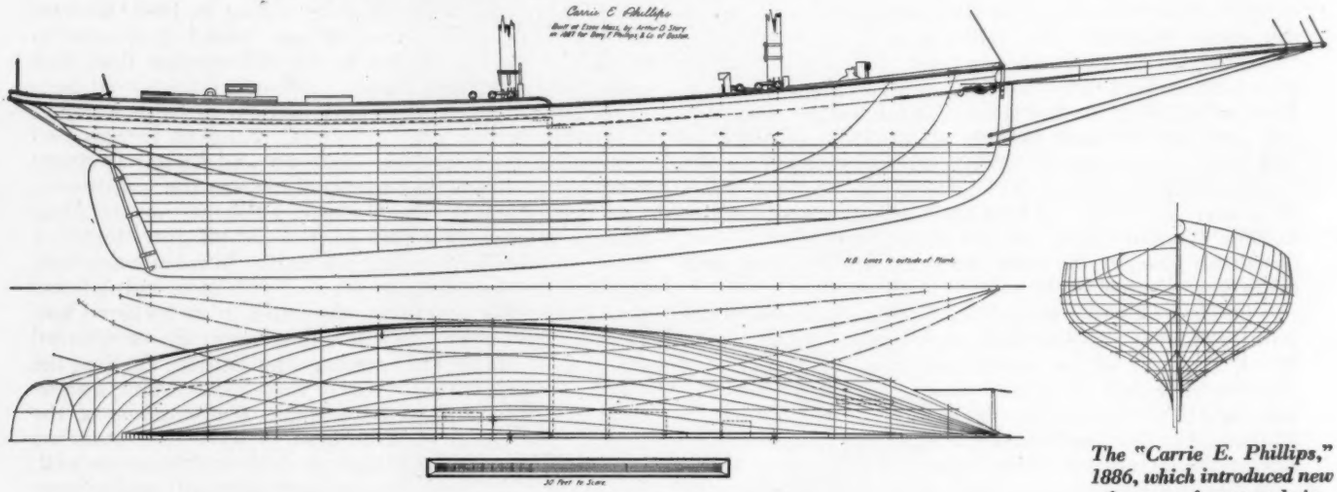
Though the *Phillips* introduced many of the features seen in fishermen today, it must not be supposed that all schooners built immediately after her were fitted in the same manner. For some years, a number of schooners



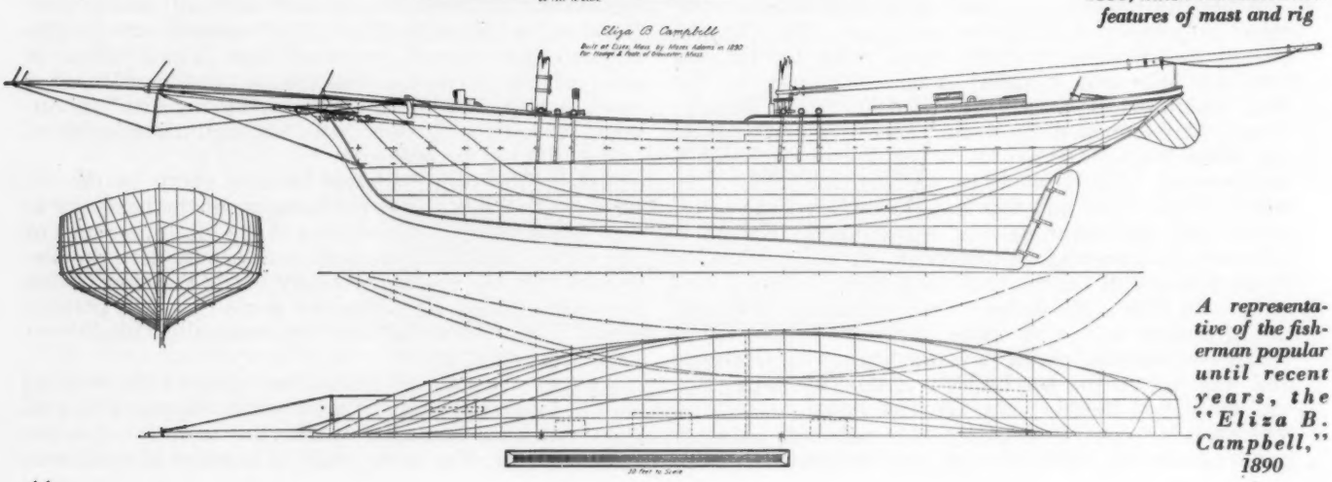
The "Grace L. Fears," built in 1874, is typical of the trend in design between 1870 and 1880



The forerunner of the "plumb stemmers," the "Arthur D. Story," 1885



The "Carrie E. Phillips," 1886, which introduced new features of mast and rig



A representative of the fisherman popular until recent years, the "Eliza B. Campbell," 1890

were built with jibbooms, while those with spike bowsprits often had the forestay a few feet forward of the gammon iron, and a fairly big jib.

Before going on with the development of the fisherman, it is worth while to describe the painting of these vessels during the early 1880's. The majority of these schooners were painted a bottle or emerald green from waterline to waist, the bulwarks above the waist being black and the cove-bead yellow; the underbody was red copper. On deck, the schooners were usually "dolled up" like the proverbial "little red wagon"; the waterways were blue or chocolate, and large circles were swept in at the foremast bed, at the great beam and at the quarters, the rest of the deck being usually gray, oil or buff. The inboard face of the bulwark stanchions was bright, and the sides were either white or cherry stain; the bottoms were painted with the waterway color. Between the stanchions the inside of the bulwarks were cherry stained. The tops of hatches and trunk were the same as the waterways. The tops of the main and quarter-deck rail caps were often bright, and the sides white. Hatch coamings were either white or gray. Spars were varnished, the masthead was white, as was the bowsprit outside the stem, with the inboard portion black; but if a spike bowsprit was fitted, the whole stick was black. This scheme of painting lasted until about 1894.

The *Phillips* was not followed in hull design by any similar vessel, for in 1889 a new and more taking Burgess design came out. This was the great *Fredonia*, built by Moses Adams, at Essex, for J. Malcolm Forbes of Boston. A sister schooner with slight alterations was also laid down by Adams in a sub-contractor's yard at East Boston for Thomas F. McManus, also of Boston, who was later to become one of the greatest of designers of fishing schooners. This last was the *Nellie Dixon*. Of the two, the *Dixon* was the first to join the fishing fleet, the *Fredonia* being used as a yacht for a year or so. With their graceful clipper stems, rockered keels, easy lines, and speed and handiness, these two schooners were so much admired that the majority of the new vessels following them from the stocks followed them in model. A number of vessels were built from the *Fredonia* molds, and the modelers, such as "Mel" (George M.) McClain, of Rockport, Tom Irving, of Gloucester, and Burnham, and Tarr, of Essex, got out designs incorporating many of her features. The *Fredonia* was 109.44 tons net, 99.6 feet long, 23.6 feet beam and 10.3 depth of hold. She foundered on the Banks on December 18, 1896. She introduced no really new features, but represented a refinement of the *Phillips* in a more cutaway forefoot and shorter bowsprit. It is probable that her popularity over the *Phillips* was largely due to her beauty and to the publicity she received on her initial appearance.

One of the points raised against the *Fredonia's* model was the lack of carrying capacity in relation to her length, so the modelers attempted to improve on the model in this feature, at least. Irving and McClain both turned out schooners that acquired great reputations for speed and power. Though they followed the appearance of the *Fredonia* above the waterline in a general way they did not indulge in slavish copying, but departed boldly from the original, working out improvements that seemed desirable. The result was that by 1890 they had developed a type that was popular until recent years. The McClain vessels may be taken as illustrations of the new model thus produced. From McClain's models were built such fine schooners as the *Eliza B. Campbell*, in 1890, the *Marguerite Haskins*, in 1893, and *M. Madaleine*, in 1894. McClain had been modeling since 1880, and had acquired a reputation with some of his early Bankers, especially with the *Puritan*, in 1887.

The plan of the *Eliza B. Campbell* shows the features of the class of schooners under discussion. She was built at Essex by Moses Adams for Hodge and Poole, of Gloucester, and measured 95.17 tons net, 88.4 feet long, 23.9 feet beam, and 9.8 feet depth of hold. She was lost in 1901.

The *Campbell* was one of the last vessels built with jibbooms; she had a rather complicated head rigging, using not only whiskers but also the spreader introduced with spike bowsprits. Vessels with this rig were built as late as 1894, but, as a rule, schooners built from 1890 on had the pole bowsprit.

A comparison of the four plans published here will show the development that took place during the period we have covered, but the changes that took place in the bows and sterns of fishermen require special mention. In larger vessels the type of stem seen in the *Fears*, with the upper head rail added, gradually went out of use during the early 1880's. The wooden head rails were replaced by iron rods as braces to the cutwater, and the stem or cutwater knee was greatly shortened. At the same time, the cheek knees seem to have been omitted, leaving only the "noble wood" (pad at the hawse) and the trail boards. In the late 1880's, the bottom edge of the trail was rounded up at its after end to meet the after edge of the "noble wood." The result was an effect somewhat like the well-known head of the yacht *America*. The wooden catheads were retained, their bottoms being rounded off just below the waist line. It was during the development of this type of cutwater that the plumb or straight stem, such as that of the *Story*, became popular, at first retaining the "noble wood," but dropping it when bowsprit spreaders were introduced through the bows, as in the *Carrie E. Phillips*. Neither the *America* nor the plumb stems had a long popularity, both giving way to the bald clipper stem of the 1890's. This stem was merely the old "gammon knee" head, usually having an eagle head or a billet at the fore end, with no trails, the scrolls being cut into the knee and planking. The bowsprit spreaders went out of use because they were not required with the short bowsprits made possible with the cutaway forefoot that became general in the new schooners of the last of the nineties.

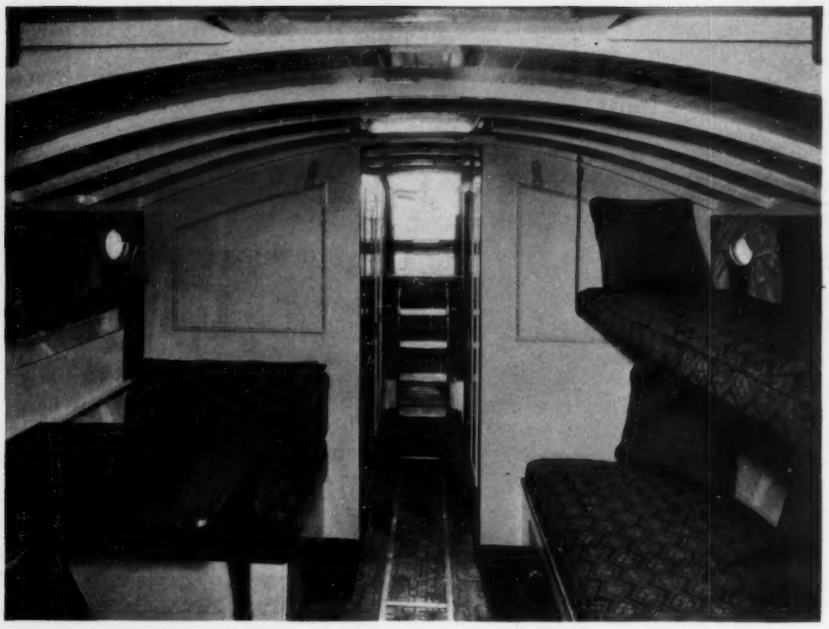
There was a somewhat similar evolution in the counters of these vessels. The short, wide counter sterns of the 1870's gave way to the longer overhang of the 1880's, which, for a few years, had much competition for popular favor from the deep "V" transom of the pilot boats. Finally, the overhang having retained supremacy, it was gradually lengthened during this period of its development. During the era of the Burgess schooners, the tendency was toward rather short counters with no visible knuckle at the junction of transom and horn timber, but in the 1890's, the transom was set with less rake, in the manner now popular.

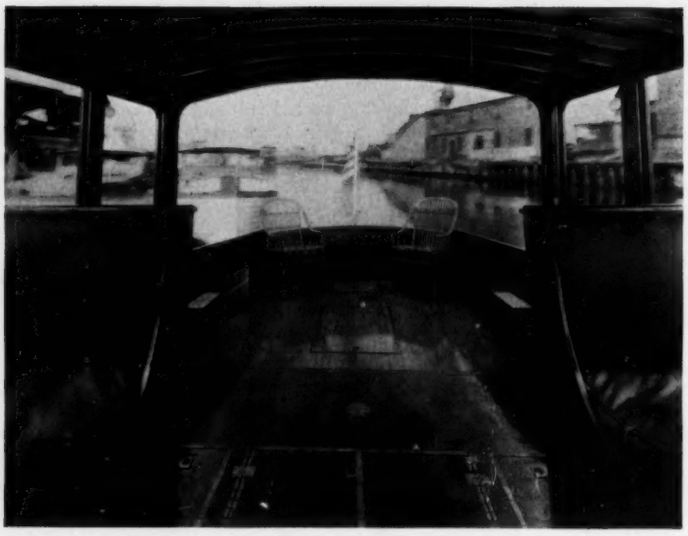
Beginning in the last of the eighties and during the following twenty years, the New England fishing schooner reached its highest development; the fleet was one of which any nation might well be proud.

"Little Nourmahal"

✦

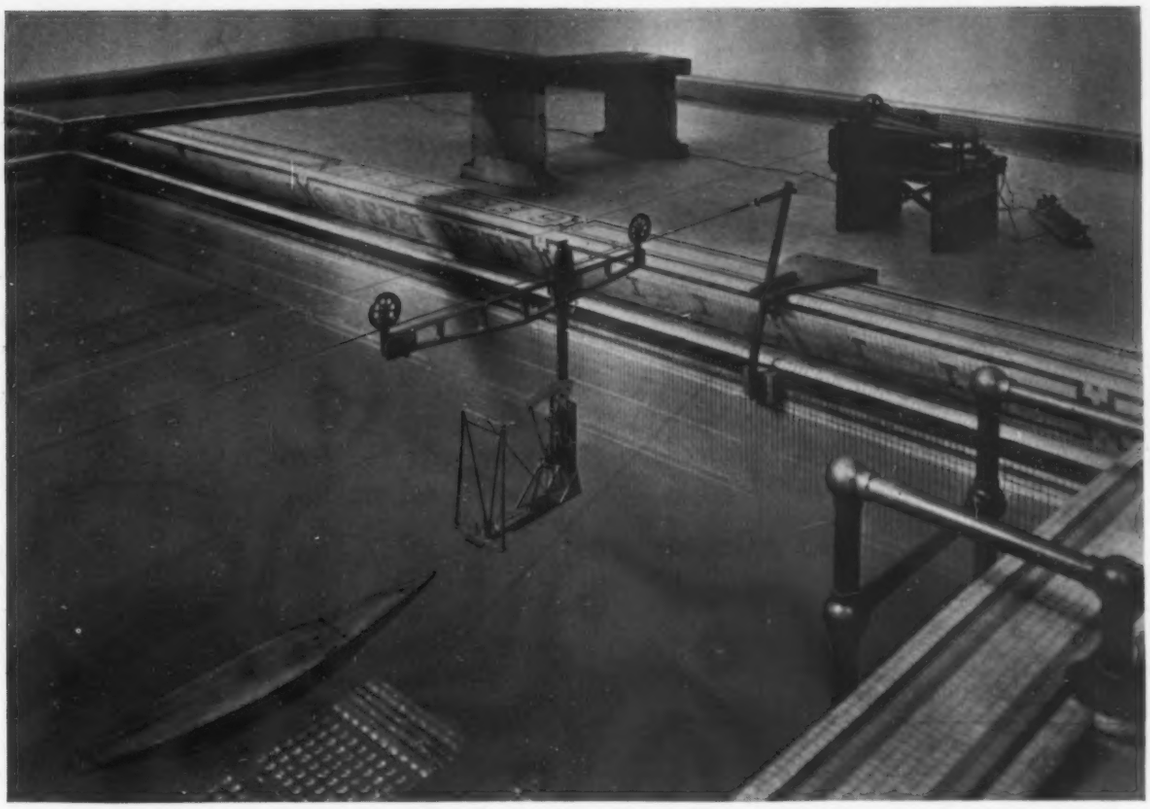
A New 39-Foot Fishing Cruiser For Vincent Astor





"Little Nourmahal," a special twin screw Wheeler Playmate, was built for Vincent Astor who will use her for cruising and fishing in Bermuda. Besides the comfortable and neatly decorated accommodations below, she has several novel features, including a large forward cockpit and built-in fish well. The spacious open cockpit aft is laid out for fishing, with the well beneath. Twin 8-cylinder Chrysler engines provide the power and give her a top speed of 22 m.p.h.

M. Rosenfeld



The towing carriage and dynamometer at the Stevens Institute tank, showing the towing engine and speed cone. Towing tests were made on a Six-Metre model and a full size hull to determine their relative resistances

Model Testing and Hull Resistance

The Resistance Relation Between Full Size and Model Yachts is Determined

By KENNETH S. M. DAVIDSON

Assistant Professor of Mechanical Engineering
Stevens Institute of Technology

NOW that practically every racing boat is built to the limiting rating of her class, and under measurement rules which impose important restrictions, the problem of designing a successful boat has become, to say the least, formidable. When races are lost or won, as they are today, through differences in speed of the order of one percent, the successful boat must indeed be a happy combination of every desirable characteristic.

The best designers have always been, and they will probably continue to be, those rare individuals who possess the keenest "boat sense" coupled with an instinctive feeling for the direction which new design should take. However, there is little doubt that the work of these men would be materially aided by more exact knowledge of the behavior of some of the major variables which enter the problems of yacht design. I say aided, meaning that progress might be accelerated, not that the designer's task would become easier. For the delicate touch of the true artist will certainly remain as the essential and endlessly fascinating factor which goes into the making of a sweet, well-balanced boat. It is rather that, with the margin between success and failure so narrow, the exact *quantitative* effect of any variation which suggests itself not only assumes tremendous importance but becomes extremely difficult to evaluate through judgment alone.

Hull resistance is obviously a major variable in the problem. It is not an independent variable in the sense that a reduction in hull resistance will result, automatically, in a faster boat, but a variable which may be picked out and studied separately. Any study of hull resistance naturally suggests model testing, which has contributed so much to the development of steamship hulls of low resistance. While models have been used to a limited extent in connection with sailing yacht design, their contribution seems to have been, so far, relatively small, and some yachtsmen rather doubt that they can be useful. Several years' work has made me most enthusiastic over their possible value, provided the tests are made, and the test results considered, from a rather different point of view than that usually encountered. I want to emphasize this difference in viewpoint because I believe it is of basic importance.

Resistance tests of steamship models, run in still water, are an important part of any development program on this type of hull. Now a steamship spends a large part of her time in comparatively undisturbed water, like that in which the model is tested. There-

The special dynamometer for measuring the resistances of full size yachts. The base board is three feet long

fore, provided the correspondence between ship and model can be established, the model test reproduces, quite completely, the actual conditions under which the ship will move. On the other hand, if we test a sailing yacht model in the same way, *i.e.*, tow it through still water — we have not reproduced working conditions completely. We may tow the model at any desired trim or heel angle, but we have omitted other possible effects of sail forces, and the yacht will rarely move through undisturbed water. There is no such direct relation between the yacht and its model test as there is between the steamship and its model test. There is an essential difference, and the two cases cannot be treated similarly. Yet, because steamship testing is an older, well established practice, it is but natural to think of sailing yacht tests in the same way. Here, I think, is the root of the difficulty. By using self-propulsion, the steamship model becomes a good reproduction of the actual ship; by applying sails to the yacht model, it acquires all the variables and uncertainties of the full size yacht, plus a few of its own, and the test results become even harder to analyze than the performance of the full size boat.

The value of the steamship model test lies in its faithful reproduction of working conditions, whereas the value of the yacht model test lies in the fact that it does *not* reproduce working conditions. The performance of the full size boat is so affected by such other variables as stability, sail set and trim, handling, and the "breaks" of racing, that it is almost impossible to make an adequate estimate of the reasons for success or failure merely by observing boats under sail. What is needed is certainly not a reproduction of full size working conditions, with all of the inextricably interwoven variables, but some way to isolate the important variables so that they can be studied independently. This is an old "dodge" which has been resorted to, usually with great success, in innumerable complex engineering problems. When the next step cannot be seen clearly, some sort of test is devised which will isolate, under restricted and necessarily artificial conditions, some one factor in the problem, in order to find out how this one factor can be controlled and varied, and in order to help form an estimate of its importance in the over all performance. Therefore, in conducting resistance tests of sailing boats, my point of view is that these tests are not attempts to reproduce actual conditions, but rather they provide a means of studying hull form, of finding out how, and to what extent, resistance can be reduced by changes in hull shape. Resistance is one factor; if low resistance is gained at the expense of something else — stability, for example — we cannot take for granted that greater speed will result. On the other hand, I believe that still-water resistance tests of yacht models, so designed as to emphasize various characteristics of form, will lead to a much clearer picture than we have now of what may be accomplished in this direction. In addition, further information will be provided which, in combination with comparable information about other major variables, will give the designer very useful tools.

Perhaps the following example will illustrate better what I mean. In the table which follows I have calculated the resistances of three steamships of the same length and displacement, and moving at the same speed. I have chosen steamships conforming to Taylor's "Standard Series" because a considerable volume of model test data is readily available for these, and they illustrate the point about as well as would yachts.

Ship	A	B	C
Length, feet	400	400	400
Displacement, tons	12,000	12,000	12,000
Speed, knots	24	24	24
Prismatic coefficient	0.67	0.59	0.51
Friction resistance, lbs.	99,000	99,000	99,000
Residual resistance, lbs.	348,000	228,000	324,000
Total resistance, lbs.	447,000	327,000	423,000

The difference between the three ships lies in the prismatic coefficient (in the Standard Series, the prismatic coefficient was altered by altering the station spacing, but without seriously changing the character of the form), and the point I want to emphasize is that it is not the qualitative information that gives the prismatic coefficient an important bearing on resistance, but the *quantitative* information — the magnitude of the effect — which rivets our attention. It is the enormous differences in residual resistance, resulting from alterations of prismatic coefficient, which stand out, and which constitute really useful design information by enabling us to judge adequately of the importance of this characteristic of form.

The example falls a little outside of commercial steamship practice, perhaps; 400-foot ships are rarely driven at 24 knots — a speed-length ratio of 1.2. But sailing boats frequently reach speeds corresponding to this ratio, and we may expect them to behave in a roughly comparable fashion. Suppose, then, that data from sailing boat model tests indicated full size, still water resistances whose magnitudes stood in something like the same relation to each other as these steamship resistances. Would the fact that the tests did not include some possible effect of sail forces, or the effect of rough water, render the results useless to the designer? If we were trying to compare two hulls whose resistances were within one or two percent of each other, it would be difficult to answer this question. But if we are investigating the effects of form change on resistance, if we are trying to discover trends in resistance accompanying trends in hull shape, then, surely, we are on safe ground when we say that still water tests will give us reliable and useful information. The technique of model testing has not been developed — in any of the experimental establishments — to a point where resistance differences of the order of one or two percent can be determined with certainty. Even if it had, there is no assurance that the omitted factors might not offset such small differences. But comparatively small shape changes often cause very appreciable resistance

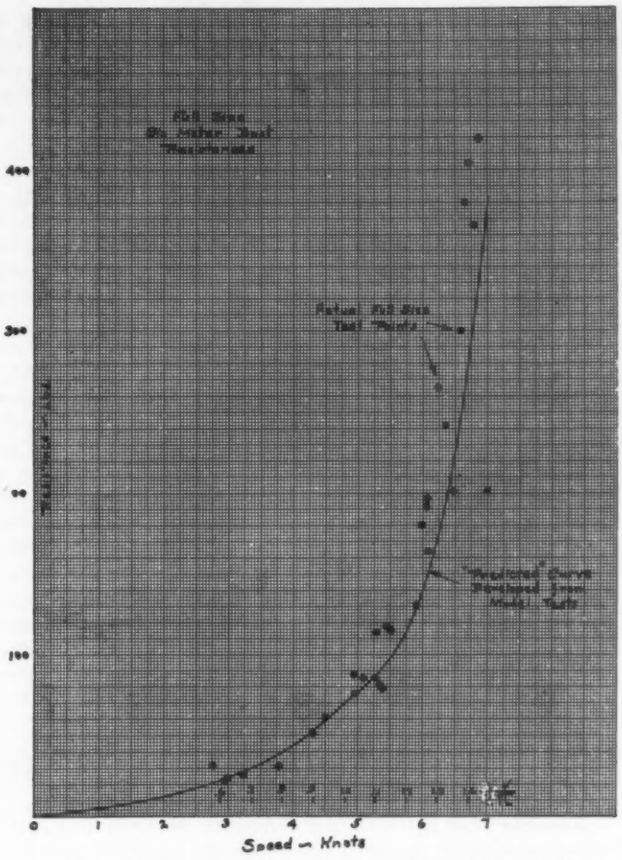


Fig. 1. A comparison of the resistance tests of a full size Six-Metre (black dots) with the curve predicted from the tests of a one-eighth-size model

changes and here, I believe, is a field in which model testing produces results of real value.

It was with the point of view just described that, a little more than two years ago, an experimental towing tank was established at the Stevens Institute of Technology, in Hoboken, New Jersey. The work in the tank during these two years has been, to those of us involved at least, extremely interesting and, while we haven't settled the whole matter, we are much encouraged by the progress which has been made. We have concentrated on two aspects of the general problem which seemed to claim first attention — establishing the laws of correspondence between models of the size we can handle and the boats which they represent, and collecting test data on as many models as possible, for we found almost no published data from which to start building up a body of reliable resistance information.

The first aspect has led us far into the field of theoretical hydrodynamics, but we feel we have been compensated for this rather painful experience, for we have succeeded in getting the laws of correspondence well straightened out. We realized when we started that, unless the work could be done at a moderate cost, there was little chance of its being done at all. This meant using comparatively small models, not so much because small models are cheaper than large ones — although they have some advantage in this respect — but because the cost of the equipment for towing them, and the cost of carrying out the tests, is thereby materially reduced. Small models — of steamships — had been tried before and had acquired a rather unsavory reputation. There were difficulties in making the tests agree with those of larger models, or of the ships. So the older towing establishments worked with larger models. At the tank in Washington steamship models are used which are about twenty feet long. This is almost as long as a full size Six-Metre boat, though, with the much greater weight of a full size Six-Metre it would be quite impossible to handle such a boat in even the largest of existing tanks. Of course a 20-foot steamship model is small compared with a 400-foot ship. That does not matter, however, as it is the actual size of the model that counts. At the Stevens tank we like a model of about three feet L.W.L., which is small compared with a 20-foot model.

The nature of the difficulty with the tests of small models was not clarified until long after models came into use — until, in fact, a realization of the essential similarity between the friction encountered by a plank-on-edge and that encountered by a liquid flowing through a pipe brought some very brilliant work on pipe friction to throw light on the problem of plank friction. Then it became evident that either of two different types of flow may occur in the narrow friction belt, or "boundary layer," immediately adjacent to a plank surface. If smooth, even streaming occurs, the skin friction is less than if the motion of the water in the friction belt is erratic or "turbulent." It seems rather natural to suppose that the smooth, "laminar" type of flow would occur at low speeds, and the turbulent type at high speeds. Curiously enough, it is found experimentally that the criterion for determining which type will occur is not speed alone, but the product, VL (Reynolds' number), of the speed and the length of

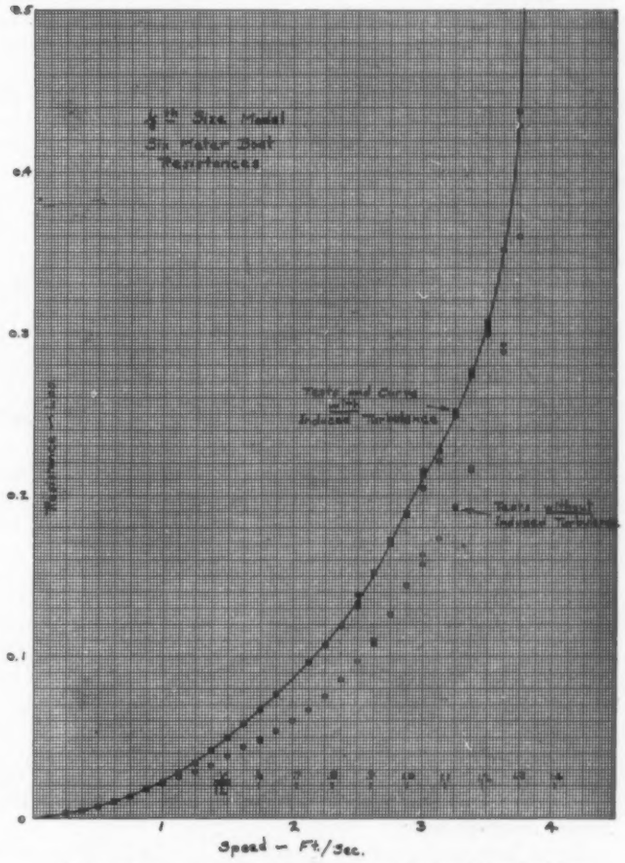


Fig. 2. The results of the Six-Metre model test with and without induced turbulence. The curve through the dots indicates the results with turbulence; the open circles, without

the plank. Below a particular value of this product we find laminar flow, near it a curious mixed flow, and well above it, pure turbulent flow. It follows that a short plank — say, the length of the model — must be moved *faster* than a long plank — say, the length of the corresponding boat — to be certain of getting turbulence.

It can be shown quite easily that these conclusions apply to boat forms as well as to planks, but in that case we must deal with wave-making resistance also. Now there are various ways of demonstrating that Froude's "Law of Comparison" for wave-making holds very well between boats and even smaller models of them than those we are discussing. This law states that the wave formations (and hence the wave-making resistances) will be "similar" if the boat and model are compared at such speeds that $\frac{V}{\sqrt{L}}$ is the same for both. It requires, then, that the model be moved more *slowly* than the boat.

We cannot expect to satisfy both requirements at the same time, for the skin friction behavior suggests towing the model faster than the boat, while the wave-making law would have us tow it slower. The usual, and for many reasons the only practicable, procedure is to tow the model slower, at "corresponding speeds" according to the Law of Comparison. Now almost any full size boat, moving at any speed above a mere drift, has a VL product well up in the turbulent region and, at corresponding speeds, the VL product for 20-foot models will usually be such that almost pure turbulent flow occurs. Thus, although the model's VL product is bound to be less than that for the ship, both are surrounded by the same type of flow, and it has been found experimentally that, under these conditions, the relative friction resistances can be estimated with considerable accuracy. But if a three-foot model is used, its VL product, at corresponding speeds, will usually be well below the limiting value for turbulent flow. Then the types of flow surrounding the boat and its model are different and no simple relation between the friction resistances of the two can be established. Thus the model tests cannot be adequately analyzed and may lead to erroneous conclusions.

All this was known at the start. The question was, what could be done about it? Even if increasing the size of the model had seemed feasible, it was unlikely that it could be made large enough to ensure turbulent flow. So we started experiments to find out if we could not "induce" turbulence at somewhat lower VL products than that at which it was likely to occur of itself. It was easy enough to show that the change-over from one type of flow to the other was very sensitive to small differences in test procedure. The problem was to stir up turbulence at quite small VL products, without, at the same time, introducing extraneous resistance.

After a good many experiments, we became convinced that we had succeeded in getting pure turbulence about a one-eighth size Six-Metre model at all useful speeds by introducing a slight surface roughness, carefully controlled to avoid extra resistance. But we could not be absolutely certain. At just about this time Olin Stephens, whose keen interest and active coöperation have been an essential part of the work from the very beginning, succeeded in making arrangements to tow, off City Island, the full size Six-Metre boat to which the model corresponded.

Here was a chance to check up, to find out if our model tests could make a reliable prediction of the still water resistances of the full size boat. It was, in a sense, a repetition of Froude's famous "Greyhound" experiments,* but on a different scale. He was comparing a large ship with an eleven-foot model; we were comparing a small ship with a three-foot model. We made very careful preparations, with a view to minimizing test errors as far as possible. A special dynamometer, or spring balance, for measuring resistances, was built. Fitted with ball bearings and controllable damping, and carefully calibrated, it turned out to be very satisfactory. The best means of measuring speeds caused us more thought. It was finally decided that, on the whole, the good old chip log and line, which was used with some success in tuning up one of the Class J boats for the last America's Cup trials, was the best solution.

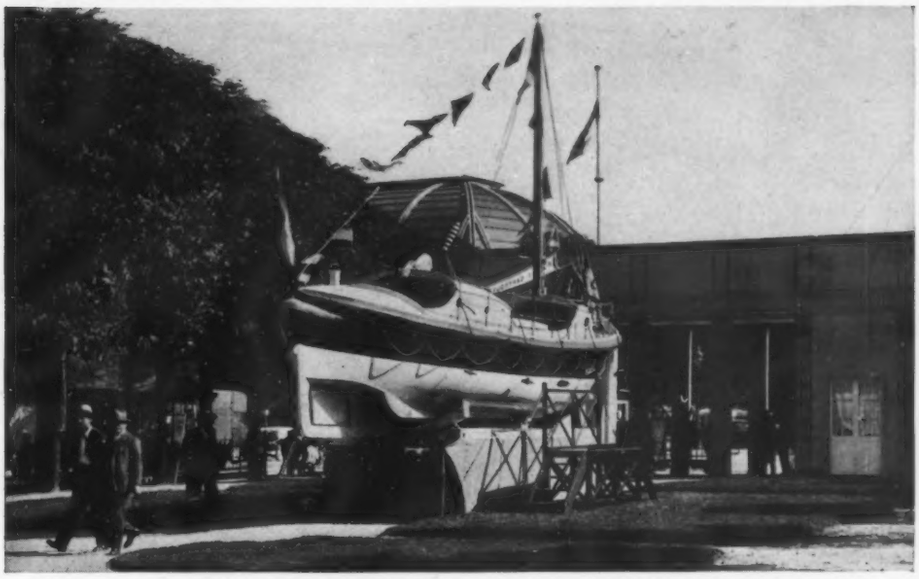
One has only to read Froude's report to see difficulties in the way of getting accurate tests at full scale. Many little troubles appear in open water tests which are absent from the more positively controlled laboratory conditions under which models are tested. In so far as there is a remedy for this situation, it is in making a very large number of tests. We should, properly, have made more tests than we did, so that more reliable averaging could have been carried out. Unavoidable circumstances prevented continuing the tests at the time, however, and a convenient opportunity to return to them has not yet presented itself. More full size tests would have made the comparison (Fig. 1), between these and the full size resistance curve developed from the model tests more elegant in appearance, but could hardly have altered it appreciably. The model test data from which the curve in Fig. 1 was developed, are shown by the blacked-in dots in Fig. 2, from which the greater consistency of the model tests is apparent.

The carrying through of a complete comparison of this sort was a most unusual opportunity. In the whole history of model testing not more than two or three similar comparisons have been reported, and these have used larger models. Trial runs of steamships effect a kind of comparison, of course, but it is necessarily so roundabout that it is not often very convincing. One difficulty which always causes a lot of trouble in analyzing steamship trials is the relative roughness of the model and of ship surfaces. In our case both were quite smooth; this probably helped a good deal toward the very nice agreement shown in Fig. 1. The agreement is not perfect, but if one examines Froude's report, or stops to consider the many chances for small discrepancies, he must realize that it is really better than we had a right to expect.

Of course the primary object of the whole job was to satisfy ourselves that a model of the size used could be so tested that it would indicate the same peculiarities of resistance as the full size boat. Fig. 1 seems to settle this point; the model resistances are clearly comparable with those of the actual boat. This was a load off our minds. It is fundamental, and very much more important than any small discrepancies in the comparison. Without it there would always be some question as to how far to rely on small models. It follows that the idea of inducing turbulent flow about the model, and the means adopted to effect it, were successful. To illustrate what this means, I have shown in Fig. 2, by small open circles, some tests of the model made without induced turbulence. At moderate speeds the latter tests fall more than 20 percent below those made with induced turbulence. Such differences would naturally be reflected in a developed curve, which would then show marked disagreement with the full size tests in Fig. 1.

It is becoming clear that the small model can be as accurate a tool as the large model, if it is carefully handled.

*Transactions of the Institution of Naval Architects, Great Britain, 1874.



The Paris Salon Nautique, with boats displayed on the right bank of the Seine and in the water along the bank, and with accessories exhibited in nearby buildings, included many interesting features, as indicated by the twin-screw tunnel-stern lifeboat shown above

The Paris Salon Nautique

Some Comments on the Eighth Annual Exhibition

By L. LUARD

FOLLOWING the procedure adopted in 1930 and 1932, the Salon Nautique this year was held in Paris on the right bank of the Seine — engines, smaller craft, and miscellaneous exhibits being temporarily housed along the length of the Cours Albert Ier, and larger yachts being moored alongside the quays.

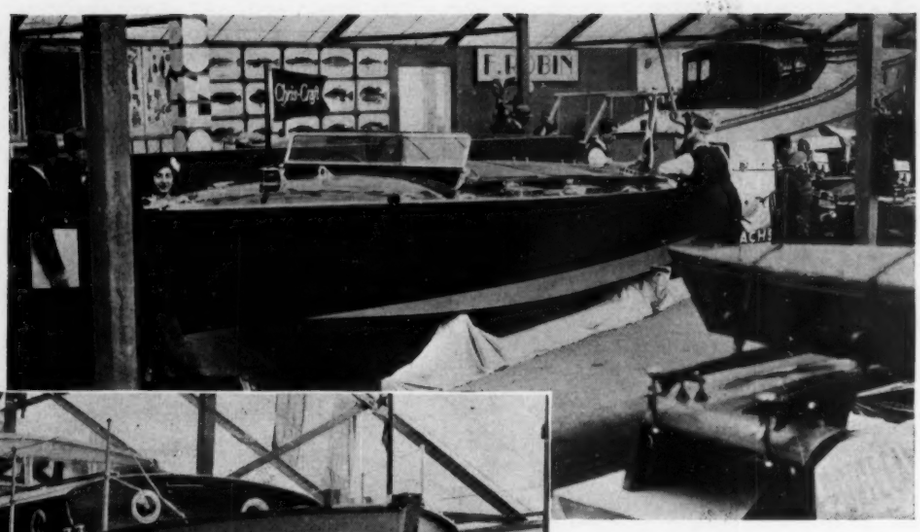
Owing to various causes, the exhibition did not, in my opinion, reach its usual standard; but as international issues are still so confused the organizers deserve every congratulation upon their decision to prevent a break in continuity. The rate of exchange, increased taxation, a general atmosphere of uncertainty and anxiety, with its pervading undercurrent of psychological restriction, reflected in a tightening of the private purse strings, and the advance in date to the early fall, — all helped to militate against outstanding success. The best time of the year to hold an annual exhibition connected with the sea seems to be in the early Spring. Thoughts then turn to open spaces, to the call of blue water, and to the "wheel's kick and the wind's song —"

The Salon this year, therefore, was less international and more national. Fewer exhibitors were present, but the quality of their work seemed higher. Yachting on the Continent has been growing steadily in popularity during recent years, and will, doubtless, continue to gain ground, once the general atmosphere is cleared. With her unrivaled seaboards — the north, west, and south coasts are all delightful cruising grounds with contrasting characteristics — with a network of inland waterways and rivers spanning the length and breadth of the country, France has potentialities as a yachting stronghold second to none.

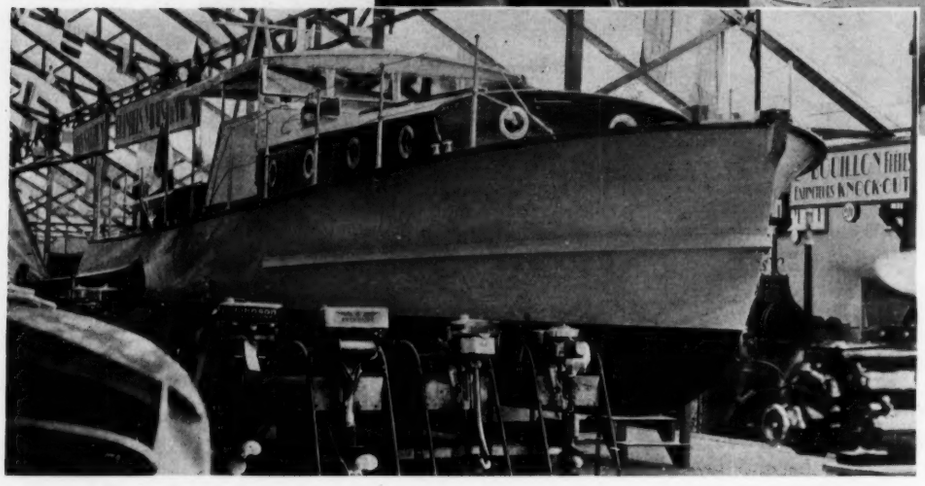
From the sailing man's point of view, the most interesting exhibit was *Winnibelle II*, a 36-foot modified Colin Archer type Norwegian gaff cutter which I described in the February 1933 issue of YACHTING. She was designed and built by Chantiers De La Liane of Boulogne, a firm that has established a first-class reputation. For several years these builders concentrated upon schooners modeled after the pilot cutter of the Loire; then, in view of the increasing demand for smaller craft, they evolved, by easy stages, this type, which, for cruising, approaches the ideal.

Starting from Brest on May 10th, Monsieur Marin Marie, who is a well-known painter, sailed *Winnibelle II* single-handed across the Atlantic, a passage which included the fast time of 29 days for the 2,900 miles that separate Madeira from Fort de France, Martinique. He used a simple and practicable rig for running, namely, two staysails, and double forestays. With a boom on each side, pivoting on a double gooseneck secured to the forestays about five feet from the deck, luffs of staysails hanked to their respective stays, and sheets leading from the outboard ends of the booms and through quarter blocks aft to the tiller, he ran for 25 days, often in fresh winds, the ship steering herself without difficulty. Nothing could be simpler for small craft but the idea may have come from Captain Waller who, fitting much the same device in *Imogen*, used two flat-cut spinnakers set in the normal way from sockets on a mastband, and sailed her single-handed from the Shannon to Las Palmas in 1926, often not touching the helm for days on end.

Chantiers De La Liane also showed plans of a 39-foot Bermudian cutter similar in hull design to *Winnibelle II*, but I was surprised to see her rather tall mast had no spreaders, and that the leads of jib and fore halliards were very high. This elementary error has already



An American Chris-Craft 25-foot runabout on exhibition in one of the buildings along the Cours Albert Ier



A typical French stock cruiser by Despujols. She is 40 feet overall and two Chrysler engines give her a speed of 23 m.p.h.

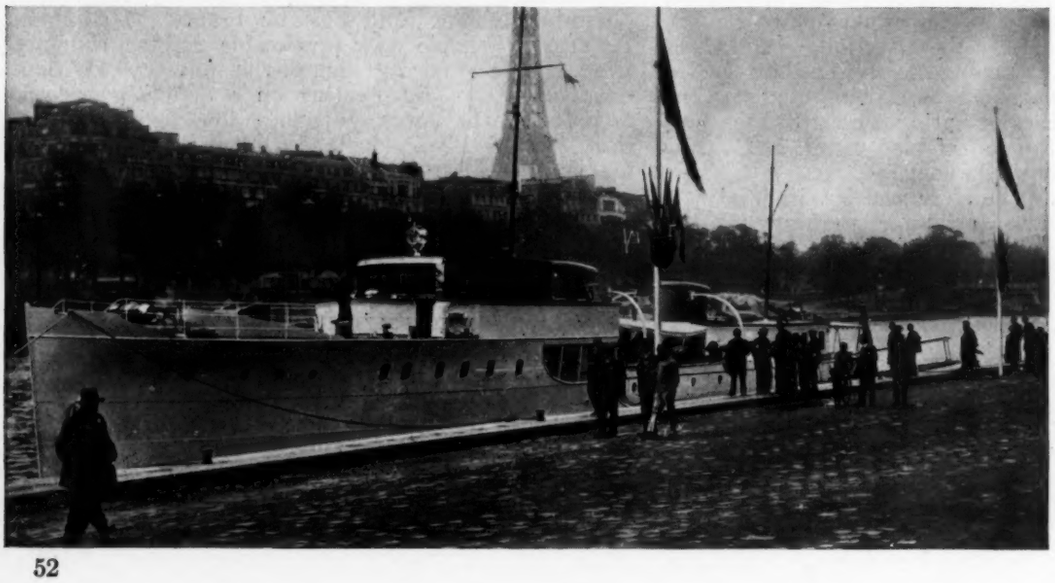
caused the dismasting of more small yachts than many imagine.

The 10-ton motor lifeboat built by Jouët, of Sartrouville, appeared a fine, husky craft. One notable point in her construction was the fitting of non-return draining valves, which, it was claimed, could empty the cockpit in ten seconds. Power consisted of two 40 h.p. Badouins with reduction gears, and these motors could be run with safety for at least ten minutes before launching.

In power, the most impressive exhibit was the 188-ton *Aronia*, a motor yacht built by Burmeister and Wain of Copenhagen, on distinctly modern lines, for Monsieur and Madame Armand Esders. She was fitted, of course, with every luxury; and one felt that she might have been inspired by the Duke of Westminster's *Cutty Sark*, originally a destroyer. But with her beam of 17 feet 4 inches on a length of 134 feet, and her rather high superstructure aft and forward, she gave the impression of being a lively craft underway, especially in a beam sea. Two 500 h.p. Diesels gave her a speed of 15½ knots, and she possessed all the latest navigation devices, including gyro-compass, echo sounding, and electric log.

Next came Despujols with one of their well-known 40-

(Continued on page 90)



One of the most impressive displays at the Salon Nautique was the 134-foot Diesel-powered "Aronia," moored to the bank

America's Cup Challenge Accepted

Keystone

T. O. M. Sopwith, challenger for the America's Cup through the Royal Yacht Squadron, and Mrs. Sopwith

THE challenge of the Royal Yacht Squadron on behalf of Mr. T. O. M. Sopwith, for a race for the America's Cup next summer, has been accepted by the New York Yacht Club. Also, the suggested date of the match, the middle of September, has been acceded to. So much we know, because it has been given out officially by the New York Yacht Club. In conformity with custom, the challenge was referred for action to a committee of the N. Y. Y. C., which will settle all details with the challenger, and arrange for the defense. This committee, appointed at a general meeting of the club, consists of Vice Commodore W. A. W. Stewart, chairman; Commodore J. S. Morgan; Rear Commodore E. Townsend Irvin; George F. Baker; Cornelius Vanderbilt; Van S. Merle-Smith and George A. Cormack.

We understand that details of the match are being arranged and the negotiations will, no doubt, proceed satisfactorily. The challenger has named a Class J cutter, *Endeavour*, to represent the Royal Yacht Squadron, and this yacht is already under construction at the yard of her designer, Charles E. Nicholson, of Camper and Nicholson, Gosport, the same firm that designed and built the last two *Shamrocks* for Sir Thomas Lipton.

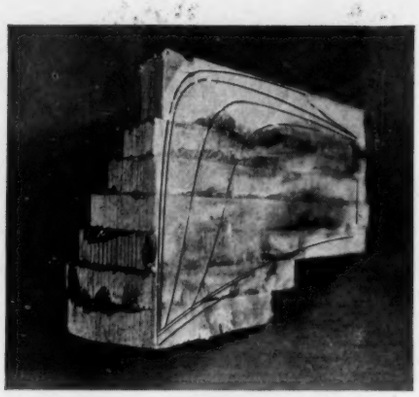
What we will do in the matter of yachts for the defense is still largely a matter of conjecture, as is usually the case in the early stages of a challenge for this trophy. While we still have all of the four boats built for the defense in 1930, it is probable that only one, or at most two, of these yachts will be used. *Weetamoe* has already been altered to fit the new conditions imposed in Class J after the last match. She will make a good trial horse. *Enterprise*, the last defender, will probably not be out. To alter her to fit the conditions, which, besides other changes, require a heavier mast and interior fittings to house the crew and afterguard, would, it is felt, slow her up so that she would have no chance. *Yankee* might be so altered to advantage.

But it is not conceivable that the defending club will be content to trust any existing boat to "do the trick." Syndicates to build one or more new yachts will undoubtedly be formed. Burgess and Donaldson, designers of *Enterprise*, and now combined with the firm of Megargel and Gruber, have already received an order from a syndicate headed by Harold Vanderbilt for a new defender, and the Herreshoff Manufacturing Company, at Bristol, will be entrusted with the building. It is probable that work on this boat will be underway before this issue of YACHTING appears. Another syndicate will probably be in the field, according to rumor, which consistently connects the name of Mr. Gerard Lambert, owner of the *Vanitie*, with a move to get a group together to build a boat. So far, no authorized statement concerning this has been made. However, we may rest assured that a well-planned defense will be organized.

As to the challenger, she should prove a formidable opponent, in view of the performance of last year's Nicholson-designed *Velsheda*, an outstanding winner in the summer's racing. Mr. Nicholson writes us, concerning the challenger:

"I am, as you suppose, unable to say anything much about *Endeavour*, except, perhaps, that when you do hear about her you may be surprised to know how little there is to hear of interest, as she will have quite a normal hull, under the satisfactory influence of the rule of measurement, because I have thought it right to suppress possible experimental form, which it would be most interesting to try out, but which this time I have to leave to the American designers! This is more especially so because we only have one 'shot,' having no other boats to choose from, which please understand I realize is entirely our own fault, because we cannot raise the same enthusiasm over a challenge on this side as you do for the defense in America. I have an idea that this match may have quite a useful influence in the development of large class yacht racing on both sides."

Endeavour is expected to take the water in April. She will race in British waters until late July, and then make the Transatlantic passage under jury rig. T. O. M. Sopwith, who has sailed the *Shamrock V*, which he bought in 1932, and the 12-Metre *Mouette*, expects to sail *Endeavour* himself, probably being assisted by C. E. Nicholson, also an excellent helmsman and racing man. So it looks as if the stage was rapidly being set for one of the best, and we hope one of the closest, races ever sailed for the "old mug". The waters off Newport, R. I., will again be the scene of the match.



No. 3. The lifts, or layers, ready to shape, with the lines scribed, or drawn, on the plane surface

How to Build a Half Model

By

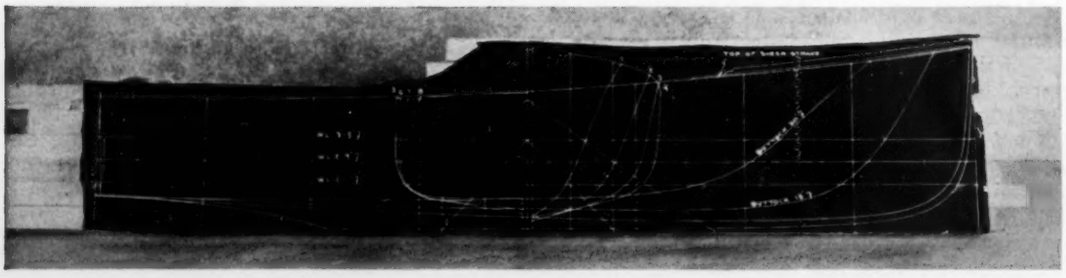
EDWIN MONK

MOST of us cherish the lines of some boat; it may be one we possessed in the past, one we own at present, or one we hope some day to build. While the building of a full model is too much for the skill and patience of the average yachtsman, an accurate half model is not difficult to make and is an appropriate ornament for any home or office. Constructed as described here, no special skill is required, and a few tools will suffice. The lift, or "bread and butter" method, is very old, but the following application of the idea is new and simplifies the job considerably. Some of its advantages are that the lifts may be of any thickness, which is quite a boon; a large part of the laying out is avoided; and the work is greatly simplified, with little chance of error.

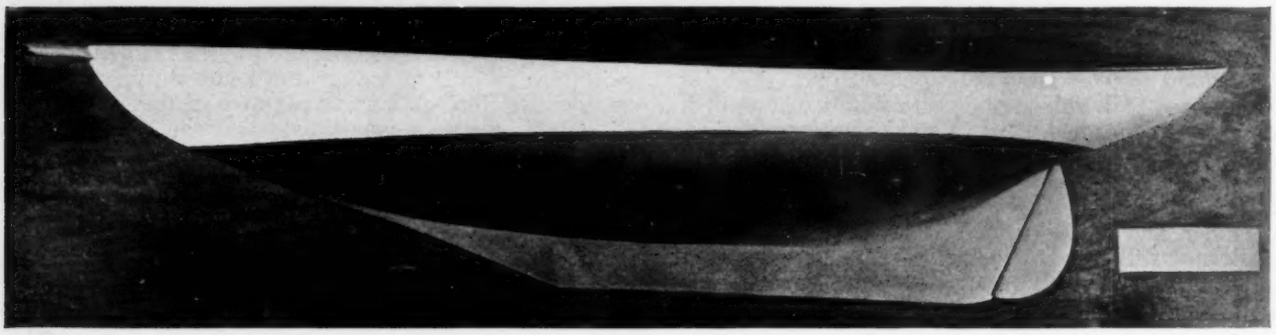
The tools required are a chisel, a gouge, and of most importance, a good spokeshave. Clamps are useful in gluing up but, as they are not generally available, a few dozen wood screws will do the trick. As for materials, sugar pine or soft white pine are recommended, although any of the cedars, including Spanish cedar, will do, as well as redwood. Try to obtain soft, close-grained lumber, as boards of the same species vary considerably in grain as well as in other respects. Various combinations may be obtained by using both a white and a red wood in the same model, finishing it bright or varnished. Alternate layers may be arranged in red and white, which accentuates the lines, or all red below and all white woods above the load waterline can be used. I much prefer a painted model if it is to be an ornament.

First of all, we must procure the lines of the boat. The designer can supply you with a blueprint of these and will probably be glad to do so. A blueprint, of course, shrinks in the process of making, but for our purpose this may be disregarded. Should great accuracy be required, obtain an ozalid print. Do not make the model too large and remember that the print may be reduced to any desired scale by photostating. A 36-inch model is about as long as is desirable for the average small yacht, and 18 inches is about as short. The lumber thickness will be governed by the number of lifts; between $\frac{3}{8}$-inch and $\frac{3}{4}$-inch stock is advisable. The more layers used the greater will be the accuracy — and the bigger the job. As great accuracy is not required in an ornament, a large number of lifts should be avoided.

The lumber is first sawed to length and then fastened together with wood screws. Use No. 8 or No. 10 screws of a length sufficient to penetrate about $1\frac{3}{4}$ lifts. Try and place them so that few screw holes will show when the lifts are sawed out. However, those that do show can be easily plugged. Now, plane up the back of your assembled block and glue on the blueprint; it will then appear as in illustration No. 1. Select some waterline on



No. 1. The blueprint or photostat is reduced to the proper scale and glued against the lifts. Below, a handsome finished model



the print and place it over one of the joints between the lifts. Shellac the back of print and let it dry before applying the glue; otherwise, the print will wrinkle due to the moisture in the glue or paste used. A few small holes cut in the print on the waterline will aid considerably in lining up the waterlines parallel with the lifts.

You must now number each lift, also number each station on each lift, both in body plan and profile. This done, the lifts are taken apart, the paper being cut at each joint with a sharp knife. Fold each lift back, using the paper as a hinge, and then slip the knife along the edge. Next, square the stations across on the top or upper side of each lift and, taking a piece of paper, mark off the station widths on the body plan, as shown in illustration No. 2. These are then transferred to their respective positions along the lift and a line is drawn through the spots. The lift is now ready to cut out, as shown in illustration No. 2. A thin strip or batten, and some small nails or pins, may be used to produce the line between the spots, or, if available, use ship curves.

Each lift is now sawed or trimmed to shape and the line faired up with a plane and spokeshave. The whole is then screwed together again preparatory to gluing. By starting with the upper lifts and working toward the bottom, the screws can be kept out of sight and clear for fairing up the model later. The very top lifts should be fastened from their upper side, so that the screws, as well as those in the bottom lift, may be removed when the glue is set.

The screws are again removed, the glue applied, and the model reassembled. As to glue, the most satisfactory I have found is the casein or cold water glue. It comes in powdered form and has the great advantage of setting slowly, thus allowing plenty of time for thoroughly fastening the lifts together. Allow at least sixteen hours for the glue to set.

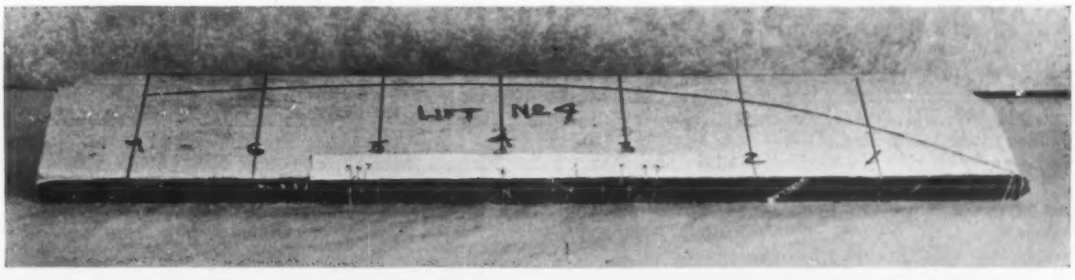
The model now appears as shown in illustration No. 3, a series of jogs or steps. These are roughly knocked off, using the chisel in the rounded sections and the gouge in the hollow ones. Before doing this, however, the sheer, stem, and rabbet line, or, in other words, the profile of the model, should be trimmed to the lines. Use a small square to transfer the deck line from the back to the outside of the model. If you wish to show the crown or camber of deck, allow for this on the back of the model. By screwing a block on the back of the model and allowing it to project below the hull, you can clamp it upright in a vise and, by turning it around, clamp it upside down. With a narrow block placed fore and aft, the model may be held on its side for working in this position.

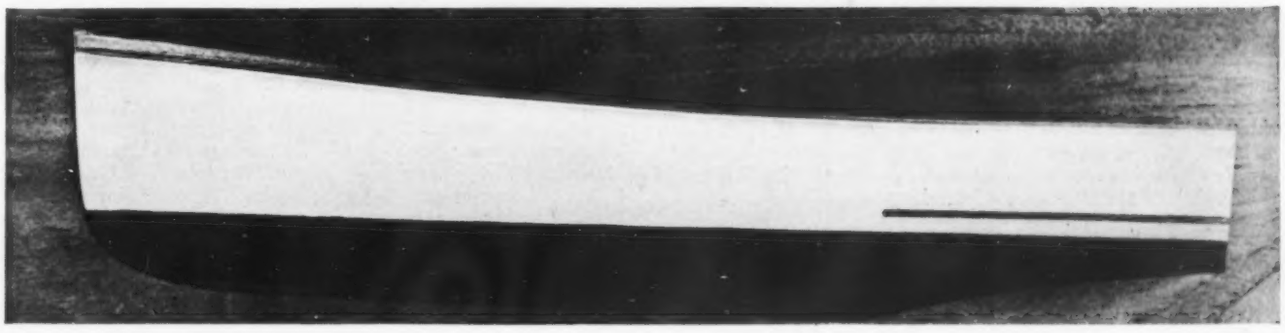
The spokeshave is used to remove all traces of the jogs or steps and to fair up all unevenness. Be careful not to trim too deep. In the deeper hollows a gouge will have to be used and a rounded sandpaper block and coarse sandpaper will be needed too. A flat block should be used elsewhere in sanding the model. A model is judged by its fairness, or absence of lumps and hollows, so spend plenty of time in fairing it up.

The best method of fastening the keel, stem, rudder, etc., is first to glue to the back of model a heavy piece of paper, allowing it to project at the edges. Then place the model on a flat surface and glue the above members to both paper and ship. Later, the paper is trimmed off around the edges. Guards, covering board, etc., may be glued or nailed in place; use as fastenings small pins with the head and point cut off.

A word about painting. A thin coat of shellac, sanded smooth, will keep the grain in the wood from raising and will provide a smooth surface for the paint. Use a thin, easily-applied enamel such as is sold for home use on furniture. Four or five coats will be required and the surface should be sanded between each. After the last coat is dry a wonderfully smooth finish may be had by rubbing the surface with powdered pumice stone and sweet oil. Use a soft rag and do not rub too hard or the bare wood will start to show. The waterline is best put on with dividers, which will make a line that will not be obliterated by subsequent coats of paint. Stand the model upright against a flat surface and block it up so that the desired waterline is parallel with this surface and the back is square off. Now set the dividers so that by running one end along this surface and the other end along the side of the model the waterline may be marked on it. Varnish or shellac the guards and covering board, and fasten these members on after painting is completed.

Mount the model with screws (from the back) on a hardwood board. You will now have an ornament that will vie with any picture or painting.





No. 2. Laying out the waterlines on a lift. Below, the finished model, attractively painted

M. Rosenfeld

"Sea Puss," a handsome 65-foot commuter designed and built by the Consolidated Shipbuilding Corp., and powered with two Wright Tornados, is owned by John T. Pratt and is used for commuting to New York

The Month in Yachting

Along with the Frostbiters

SO-CALLED Frostbite racing, or winter sailing in Class A and B dinghies of the North American Dinghy Association, has resumed where it left off last spring, and is going stronger than ever in various ports from Boston to New York. Ambitious winter schedules have been adopted by different clubs, new, faster, and better dinghies have been added to both classes, and the future looks bright for the comparatively new sport of winter sailing in northern latitudes.

Results of the two sanctioned intersectional regattas, held at Mason's Island on October 22nd, and at Essex on November 12th, prove fairly conclusively that last season's boats in both classes are pretty well outbuilt. Boats from the drafting boards of Nick Potter, Harry Hall, John Alden, Ray Hunt, and others, have shown a definite advance in speed over last season's crop in Class B, with one or two of the older boats scoring occasionally. New stock boats designed by Alden and W. L. Warner have been in the forefront in Class A pretty consistently, with a new model by W. J. H. Dyer threatening to steal quite a lot of thunder before much snow flies.

In order to give the owners of older and slower boats a run for their money, and to prevent crowding at starts and marks, an experiment was tried at Essex which apparently worked out successfully. In a series of what might be termed trial races, each class was divided into divisions on the strength of former racing records, each division being, theoretically, of equal strength. For the final series, the leading boats of each division were put into Division A, and the slower boats into Division B. This relieved congestion, and gave much fairer and more satisfactory racing for all hands.

Records for entries have been broken twice, in rapid succession. At Mason's Island 42 boats had it out, while at Essex 46 boats enjoyed a fine two days of sport. The entries were about evenly divided between Classes A and B. Following is a list of the leading boats at Mason's Island:

CLASS A. *Fanny Dunker*, Dick Hill (Warner), 98; *Fifi*, Sam Wetherill (Alden), 90; *Vodka*, George Hart (Alden), 76.

CLASS B (Plant Trophy). *Softy*, Corny Shields (Potter), 210; *Ice Pick*, Harry Hall (Hall), 194; *Zenith*, Alden (Alden), 193.

At Essex the point scores of the winners were as follows:

CLASS A, First Division. (Roosevelt Trophy). *Fifi*, Sam Wetherill (Alden), 47; *Fanny Dunker*, Dick Hill (Warner), 37; *Feather*, Sherry Fahnestock (Ratsey), 36.

CLASS A, Second Division. *Twinkle*, A. Erdman (Alden), 38; *Vodka*, George Hart (Alden), 36; *Katinka*, Alex Gest (Alden), 32.

CLASS B, First Division. (Dickinson Trophy). *Plover III*, Hunt and Howland (Hunt), 56; *Snowball*, Lorna Whittelsey (Stephens), 47; *Pansy*, Chandler Hovey (Paine), 43.

CLASS B, Second Division. *Utility*, George Ratsey (Fox), 53; *Snaps*, W. B. Cudahy (Hunt), 48; *Bambino*, Frank Campbell (Potter), 41.

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Women Form National Yacht Racing Organization

THE yachtswomen of the country, traditionally regarded as supernumeraries on pleasure craft, have at last asserted their independence by forming a national association which will take charge of their racing championships in the future and will supervise the sectional eliminations for the national championships. Furthermore, the Mrs. Charles Francis Adams Cup, emblematic of the women's national championship, has been, or is about to be, deeded to the North American Yacht Racing Union, which will appoint three trustees, as was done in the Sears Cup for juniors. It is expected that the three trustees will be Mrs. Anne Matheson Wood of Cold Spring and Huntington, L. I., Mrs. Katherine Stone Hoyt of Marion and New York, and Mrs. Joan Borden Colt of Bristol and Providence, R. I.

The officers of the new National Women's Yacht Racing Association, chosen at the initial meeting at Cohasset on September 6th, were Miss Clara F. Dinsmore of Edgartown and New York, president; Miss Lorna Whittelsey of Greenwich, Conn., vice president; Miss Ernestine Hills of Hingham and Brookline, Mass., secretary; Miss Ruth Sears of Cohasset and Boston, treasurer; and Mrs. Elizabeth Lee McKean, of Beverly, Mass., Mrs. Elsa A. Potter of Bristol, R. I., and Miss Joan Earle of Bellport, L. I., and Brooklyn, as members of the executive committee.

W. U. SWAN

Crooks Wins the Colonel Green Round Hill Trophy

SAMUEL CROOKS, of Rumson, N. J., captain of the Rutgers University outboard team, is the first winner of the new Colonel Green Round Hill Trophy for the amateur driver scoring the greatest number of points throughout the season in sanctioned regattas of the American Power Boat Association. The young Rutgers freshman's score was 11,480 points secured in 37 races in 12 sanctioned regattas out of 35 held in the East and Far West, the two territories of the United States in which motor boat racing is supervised by the A. P. B. A. In the contest the complete scores of 211 drivers were kept throughout the season, 119 of them in the East, 68 in California and 24 in the Pacific Northwest.

Second to Crooks in points was Lewis G. Carlisle, of East Islip, L. I., winner of the American Outboard High Point Trophy, the National outboard scoring championship. Carlisle's score for the Colonel Green Round Hill Trophy, which is a duplicate of the famous Green Sea Island Trophy raced for annually in Florida, was below that of Crooks largely because Carlisle won many of his points for the American High Point prize in regattas sanctioned by the National Outboard Association, which were not tabulated for the Green Trophy.

The final standings of the first five drivers were as follows:

Name	*Points*
Sam Crooks, Rumson, N. J.	11,480
Lewis G. Carlisle, East Islip, L. I.	10,418
Roy J. Straley, Syracuse, N. Y.	5,667
Ward Angilley, Marysville, Calif.	5,554
Jim C. Nunnelly, Detroit, Mich.	4,427
Dick Southern, San Jose, Calif.	4,021

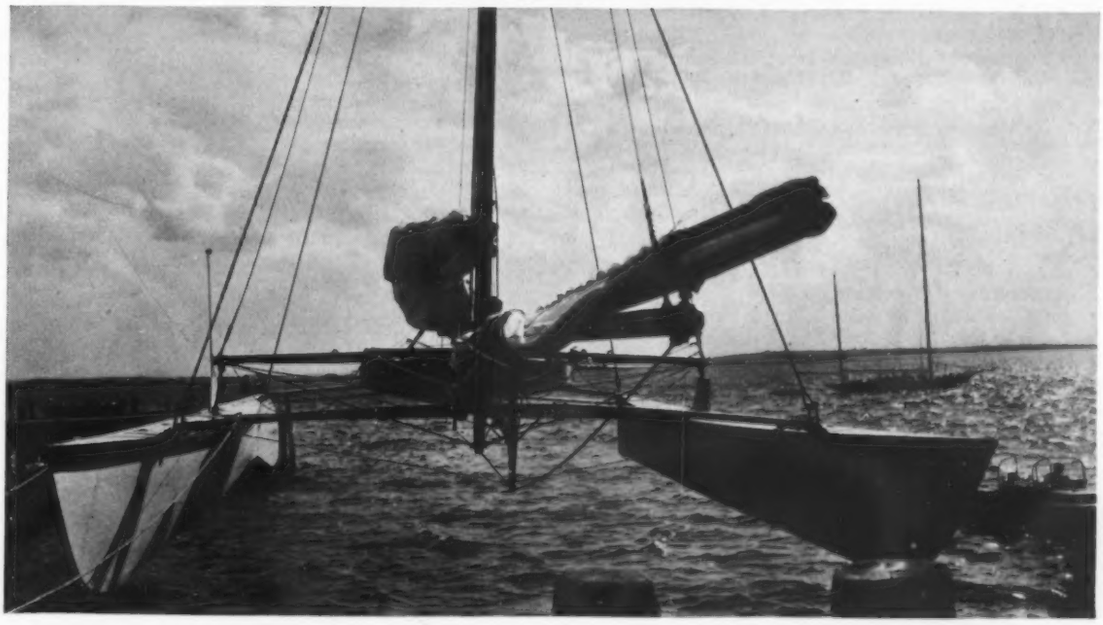
British-American Six-Metre Race for 1934

THE Seawanhaka Corinthian Yacht Club recently announced that a challenge has been received and accepted for a British-American Cup match to be sailed off Oyster Bay next summer. The British team will consist of three, and possibly four, Six-Metres, built either to the new or existing International Measurement Rules. The races will commence the last week of September.

The British-American Cup was first instituted in the year 1921 under an agreement between the Seawanhaka Corinthian Yacht Club, the Royal Yacht Squadron, Royal Thames Yacht Club, Royal London Yacht Club, and the Royal Victoria Yacht Club, for a series of races between teams of four Six-Metre yachts, representing Great Britain and America, the races to be held alternately in Great Britain and the United States. The country first to win two successive matches was to become the permanent possessor of the cup.

The first match for this cup was sailed at Cowes in 1921 and was won by the British team. The second match, sailed at Oyster Bay in 1922, was won by the American team. The British took both the third match, sailed at Cowes in 1923, and the fourth match, sailed at Oyster Bay in 1924. Thus the British became the permanent possessors of the cup.

A new British-American Cup was offered in 1927 for a second series of these races. The Royal Northern and the Royal Clyde Yacht Clubs were added as parties to the agreement. The Seawanhaka Corinthian Yacht Club was the American signatory. The conditions for this second series provided that the races be held in the Six-Metre Class commencing in 1928, the matches to be held every second year, alternately in Great Britain and the United States. This cup has been re-offered for a new series similar to the last. The details are now being settled.



The new Herreshoff catamaran which is capable of speeds up to 20 m.p.h. Top. One of the ever-increasing fleet of 16-foot Comets which have been built from plans by C. L. Johnson which appeared in the March, 1932, issue of "Yachting"

W. B. Jackson

The "Harvard," with her after staysail rig, developed by her owner, C. H. W. Foster and proved a marked success

The Past Season on Barnegat Bay

AT ITS recent annual meeting the Barnegat Bay Yacht Racing Association elected officers for 1934 and deferred until next March the question of another challenge to the Royal St. Lawrence Yacht Club, of Montreal, to resume the International Challenge Cup series in the bilgeboard scows. Dropped in 1933 for the first time since 1926, when the international series was started, it now seems problematical whether next summer will see this splendid rivalry continued.

Officers elected for 1934 are as follows: Commodore, William J. Orchard, Bay Head Yacht Club; Vice-Commodore, Benjamin Adams, Island Heights Yacht Club; Secretary, J. G. Kean, Lavallette Yacht Club; Treasurer, F. M. Doan, Toms River Yacht Club. In addition to the officers, next year's Executive Committee will include C. B. Boocock, Edward Crabbe, J. King, Henry H. Cross, and A. J. Cascaden. The 1934 Regatta Committee will consist of Benjamin Adams, Chairman, P. R. Van Duyne, C. E. Lucke, Jr., J. W. Dilworth, E. W. Adams, Edward Crabbe, and T. R. Debevoise.

Championship standing percentages for the past season were:

MOTH BOATS — 14 entries			
Narf	C. King	Toms River Y. C.	93.5
Cracked Ice	R. Snyder	Toms River Y. C.	92.0
CLASS A SNEAKBOXES — 59 entries			
A. B. C.	C. Hotaling	Toms River Y. C.	93.2
Gedunk	D. Richman	Ocean Gate Y. C.	92.3
CLASS B SNEAKBOXES — 32 entries			
Curlew	D. Downer	Mantoloking Y. C.	87.9
Nancy Lee	Wm. De Camp	Bay Head Y. C.	84.4
SEVENTEEN-FOOT CATBOATS — 17 entries			
Flying Devil III	E. F. Britten III	Bay Head Y. C.	97.9
Petrel	J. Debevoise	Mantoloking Y. C.	70.3
STAR CLASS — 8 entries			
Nick Nack	C. E. Lucke Jr.	Seaside Park Y. C.	73.2
Curlew	H. A. Ludeke	Seaside Park Y. C.	62.1
CLASS E SLOOPS, Div. 1 — 9 entries			
Rascal II	F. W. Thacher	Bay Head Y. C.	78.2
Ardette	Florence Chance	Mantoloking Y. C.	69.5
CLASS E SLOOPS, Div. 2 — 4 entries			
Valrick	S. V. Merrick	Bay Head Y. C.	97.3
What How	T. Dilworth	Ocean Gate Y. C.	60.0
CLASS A CATBOATS — 5 entries			
Mary Ann	Roy Applegate	Island Heights Y. C.	79.2
Bat	Beck and Mac Crabbe	Toms River Y. C.	64.7

During the season the Moth Boats made their successful debut and have an assured popularity for the future. The older type gaff-rigged catboats will not race another season. The bilgeboard scows, or Class E sloops, naturally suffered from not having the international series with Canada and were further handicapped by the death of Major T. M. Chance of Philadelphia, one of the originators and strongest boosters of these speed machines on Barnegat Bay. It is understood that at least one, if not more, new Class E sloops will be on hand in 1934, and new bursts of speed are looked for.

The juniors, in the sneakboxes and smaller catboats, were as numerous as ever, and many of them will shortly be graduating to the larger boats. Two new Stars made their appearance during the summer. The fifth annual Bamberger Series for Stars attracted boats from six fleets in Jersey's most intersectional series, the local fleet losing the cup to Long Island Sound's *Jubilee*. A fleet of Snipes is being formed now and may take an active part in next summer's racing.

The various perpetual trophies for the big marconi-rigged catboats were won as follows: Morgan Cup, *Spy*, E. J. Schoettle, Jr.; Wanamaker and Toms River Cups, *Bat*, Edward Crabbe; Sewell and Middleton Cups, *Mary Ann*, S. Roger Gale.

CHARLES E. LUCKE

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A New Rig

CHARLES H. W. FOSTER, Marblehead yachtsman, has conducted numerous successful experiments to improve the speed and utility of yachts, and there is no question that his ideas have proved of value. His latest contribution may well revolutionize the accepted theories of rig.

Some years ago Mr. Foster became convinced that the yawl and ketch rigs were decidedly inefficient. After a time he arrived at the conclusion that a staysail, set closer to the mainsail than it is possible to place a mizzen sail, would bring better results. Taking a large dory and adding to it a fin keel, Mr. Foster first tried out the rig on this boat, known as the *Foster Sister*. Later the rig was placed for a time on the Class Q sloop *Questa*, with less success, owing to the fact that the proper balance had not been determined accurately.

Convinced that the idea was feasible, Mr. Foster purchased

Courtesy R. St. L. Peverley

A Breton Tunny boat in the Bay of Biscay. Rugged, able, and with vari-colored sails, these boats present a picturesque sight

this Fall the schooner *Harvard*, a typical heavy fisherman type, and commissioned Samuel H. Brown, Jr., Marblehead naval architect, to work out the proper rig.

The theory, or principle of the rig, takes into account the known fact that there is considerable drawing power to the lee side of a sail. Thus the gap between the mainsail and the staysail on the *Harvard* is similar to the slot between the jib and mainsail. Under jib and staysail alone, she will work to windward, something no yawl and few ketches can accomplish. The rake of the mast makes possible another desirable feature. In reefing, there is almost no shifting of the centers of sail effort.

Despite fears to the contrary, the strain on the backstay has been proved very slight. Under sail, the *Harvard* has amply justified Mr. Foster's faith in the rig. Her lines can hardly be called those of a yacht, but in sailing to windward with any schooner, ketch, or yawl of about the same size, the *Harvard* has both outpointed and outfooted her rivals. In the final event of the Marblehead season, the annual Chowder Handicap Race, the *Harvard*, under sail with this rig for the first time, and despite starting ten minutes late, finished a winner. In this contest she outsailed all craft but the strictly racing types, and, on the last leg, which was a close fetch for the racing sloops, she was the only cruising type vessel which was not forced to tack.

The success of the *Harvard's* rig has already taken effect and the rig will be tried out on other craft.

LEONARD M. FOWLE, JR.

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Seawanhaka Cup Race Next Summer

AT A meeting of the International Racing Committee of the Seawanhaka Corinthian Yacht Club recently, it was announced that a challenge for the Seawanhaka Corinthian Yacht Club International Challenge Cup had been accepted from the Royal Northern Yacht Club of Glasgow, Scotland. Races for the cup will be held after the series for the British-American Cup scheduled for the last week in September.

In connection with the British-American Cup, the committee announced that Mr. Clifford D. Mallory, President of the North American Yacht Racing Union, had been appointed Chairman of the British-American Cup Committee.

The Seawanhaka Corinthian Yacht Club International Challenge Cup is generally considered the premier international small boat yachting prize of the world. Twenty-one series of races have been held, beginning with the first match in 1895.

After successfully defending the cup in a match with England in that year, Seawanhaka lost it to the Royal St. Lawrence Yacht Club in 1896, which successfully defended the cup in matches against Seawanhaka in 1897, 1898, and 1899, and against other clubs from 1900 to 1904. In 1905 the Manchester Yacht Club challenged and finally won the cup from the Canadians, successfully defending it next in 1910.

In 1922 the cup went to Scotland, where it remained until 1925, when Seawanhaka brought it back to this country. Norway took it back to Europe in 1927, but it was recaptured by Seawanhaka the following year. Again the Scotch took the trophy to the Clyde, where it remained until 1931, when Seward Johnson's *Jill* brought it home to Oyster Bay.

L. Y. R. A. News

AT THE annual meeting of the L. Y. R. A., held at the Buffalo Canoe Club, Major Le Roy F. Grant, of the Kingston (Ontario) Yacht Club, was elected president of the Lake Yacht Racing Association, of Lake Ontario, and the 1934 regatta was scheduled for August 28th, 29th, and 30th, off the Canadian National Exposition grounds at Toronto.

The course of the association's long distance handicap cruising race will be 115 nautical miles long, and will start off the port of Rochester, N. Y., crossing the Lake to Cobourg, Ont., and rounding a mark to port and proceeding up the lake to the finish line outside the Toronto harbor entrance.

Competition between the Rochester Yacht Club and the Royal Canadian Yacht Club, of Toronto, for the historic Canada's Cup, will be resumed off the port of Rochester the week of August 20th. The cup was won in 1932 by the *Conewago*, Rochester Eight-Metre, and in 1930 was taken by the *Thisbe*, of the same club.

During the week prior to the Canada's Cup race, eliminations at Rochester, August 16th, 17th, 18th and 19th, to determine Lake Ontario's R Class challenger for the Richardson Cup, will be held. Every club on the lake will be entitled to enter one 20-rater in the eliminations, and the series for the cup is expected to be sailed the week of September 3rd. The mug was won in 1932 by the Chicago Yacht Club.

After a day's recuperation from the L. Y. R. A. regatta at Toronto, yachtsmen of that association will take part in the Canadian National Exposition races at Toronto September first.

DAVID F. LANE

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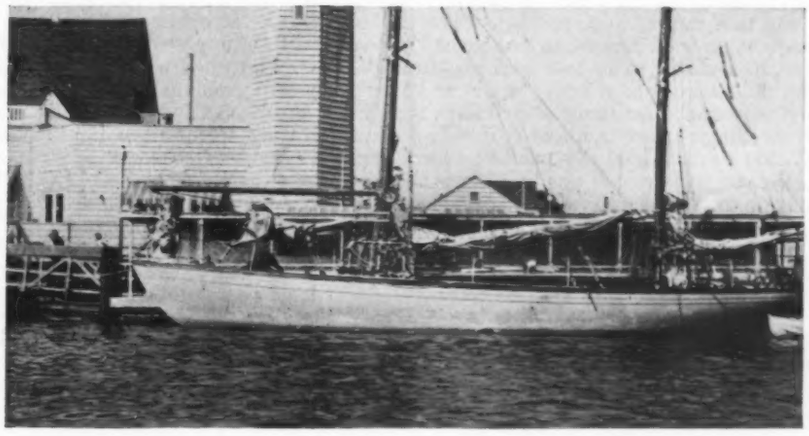
From Hong Kong to California In a 54-Foot Ketch

ON October 22nd five young British naval officers arrived from Hong Kong in Los Angeles harbor in the 54-foot ketch *Tai-Mo-Shan* which they had built by Chinese labor in Hong Kong from a modern design and named after the highest peak of that British colony. The five officers are Lieut. Comm. M. B. Sherwood, Lieut. R. E. P. Ryder, Lieut. P. S. Francis, Lieut. G. S. Salt, and Surgeon-Lieut. Ommany Davis.

They left Hong Kong on May 31st, Formosa on June 8th, Yokohama on July 1st, and Nemura, North Japan, July 31st. They chose the northern route across the Pacific, making a landfall on Attu Island, the westernmost of the Aleutians. Departing from there on August 10th, they sailed to Dutch Harbor, Alaska, which they left on August 23rd, arriving in Victoria, B. C., on September 27th.

Only once were they forced to heave-to when they struck a northerly gale off the Aleutian Islands. Their best day's run was 195 miles. From Los Angeles harbor they will call at San Diego and then head for the Galapagos Islands, the Panama Canal and England.

CAPTAIN FRANK JANSEN



"Tai Mo Shan," a 54-foot ketch built in China from British designs, was sailed from Hong Kong to California by five British naval officers

Letters and Correspondence

At Last—Spontaneous Cruiser Racing

Dear Skipper:

I HAVEN'T been writing you many public letters lately because I thought you were having troubles enough without sticking my oar in. You know, about the Cruising Club and its designing competition (and they call that designing!) and other racing matters. And you may remember also that when I wrote you a year ago and jumped on the sail limitations of the Bermuda Race rules you threw my letter in the waste basket on account of the depression. I mean, I said it was a mistake to slow a boat down by limiting her sails and in disagreeing with me you said that on account of the depression it was a good idea to restrict the number and kind to be carried in an ocean race. As if the depression itself wouldn't restrict sails, without aid from the rules committee.

Anyway, for one good reason or another you haven't published anything from me on racing since that effusion about the gentle art of quitting. And how the boys did razz you about that and threaten to cancel their subscriptions. Well, I start this letter by saying that I put my cutter *Hotspur* in the last race of the season and came within an ace of having D.N.F. written after her name. (Although nowadays the kind reporters in the daily press use T.N.T., for Time Not Taken, instead of D.N.F., for Did Not Finish, and that helps a guilty conscience quite a lot.)

Well-l, if the race had been 51 miles from New Rochelle around Stratford Shoal Middle Ground to Northport entrance instead of 50 miles I'd have been there with an excellent alibi. As it was, I said to Bunny Rigg, who was helping me hope we could cross the finish line without jibing, "Bunny, there's an awful lot of play in that bowsprit of ours. Guess we'll have to set up the bobstay when we finish." And Bunny, not wanting to get me all of a lather, waited until we crossed and then said, "There isn't any bobstay." You see, the upper splice of the monel wire stay had pulled out just after we rounded Eatons Neck for the short run to the finish, and if we'd been another mile on the wind I bet we'd have lost the mast.

But all's well that ends well, and I'm still looking forward with dread to the use of TNT — although I mean this time that high explosive we used to use in the sub-chasers. Before I get on with the main topic of my letter I want to tell you about Walter Barnum, owner of the *Brilliant*, who shipped with me in this swell New Rochelle Yacht Club race. Walter has let me sail a good many miles with him in his sumptuous schooner, which is all fitted out with vacuum cleaner for sucking Bull Durham ashes out of the bilge, escalators for going aloft, wheel chairs for bowsprit work, etc., and I thought it was time we tried going to sea together. I mean, really going to sea, when you're in a small boat. So he shipped with me and put on all his warm clothes, but forgot his oilers, and after we'd reached down to Stratford Shoal we put the little cutter on the wind and started home. And the sea came to meet us. *Bam* over the starboard bow, and *whish* over the lee cockpit coaming. Then the port running light stayed under water so long that it went out, and after that the lee sheets and backstay runner trailed astern so that we had to dive in up to our waists, head down, to get 'em back aboard again. And the deck meanwhile was on about a 66⅔° angle, and if we'd had a hammer and nails and a few shingles we'd have thought we were put there to shingle the church roof — if we'd been at church. But all Walter Barnum said that might be considered in the least critical of our performance was that it was the best race he'd ever stood up to. The joke is, you see, that when we lay down across the cockpit we were actually standing straight up. This seemed like such a good joke that I pass it on to you to use again next summer.

Which makes me think of something else. Do you remember that article you published entitled "Two Hundred a Day?" Well, I had a letter from Fritz Fenger saying that he read it because he thought the title meant two hundred dollars a day, and so came across that word of his that I borrowed and gave him credit for. "Herming" is the word, and Fritz says it doesn't mean whistling as I thought it meant, but threatening. Thus, a squall "herming" to leeward is a squall threatening to leeward, and Fritz says it might also be used of a cook "herming" to swing her frypan when the skipper gets too near her dangerous semicircle. And he shouldn't have told me that one if he expected to get paid for it himself.

So by devious ways and means we come to the gist of my letter, which is that the boys up at New Rochelle have hit on a rating rule for their Stratford Shoal Race that has all the others stopped. How they must sit back in the long winter evenings and sneer at other outfits that extract the cube root of W minus B plus D times ½ G divided by 3.1416! How they must laugh their heads off over the serious thinkers who say that because a cutter is the most efficient rig it must be penalized in favor of an Egyptian dhow, and how they must roll out of bed when they think that in the last Bermuda Race the contestants were restricted to one ginny jib but were permitted to clutter up their main cabins with a squaresail. Anyway, I bet a dollar they laughed.

Because all the race committee of the Stratford Shoal event does about rules is this: "Rating for time allowance shall be the mean of the overall and waterline length as given in Lloyd's Register of American Yachts, 1932 edition." (I don't get that 1932 edition unless there was a disposition among last year's contenders to reduce the lengths of their boats in the 1933 edition.) "Time allowance will be figured by Y. R. A. of L. I. S. tables for a course of 50 miles in length. Sails only shall be used for propulsive power, but there shall be no restrictions on sails, either working or light, or how they may be set. All government buoys and navigational marks may be disregarded."

Now I ask you, Skipper, for downright simplicity can the New Rochelle outfit be beaten? Do they tell you you've got to carry a life raft, or a water light, or have a Coast Guard cutter standing by in case of emergency? Not by a long shot. Do they say that because Jones is poor and can't afford two fisherman staysails Smith will be restricted to one? Nope. Do they say that a cruising yacht is one that has less than 45 per cent of her weight in ballast? No sir; they allow that a cruising yacht is one that is used for cruising and they say, in effect: "Here, sportsmen (and gentlemen), is a race for cruising boats between 25 and 60 feet waterline length. We start it on Friday the 13th of October when there's likely to be a little wind, and we don't care whether you rig as a cutter, schooner, or Algerian xebec. Start at 10:30 in the evening, race like hell all night, and we'll have a committee boat over there at Price's Bend to see you finish."

So off they go. Last year the wind was light and westerly at the start, but freshening toward midnight, and fourteen contestants carried spinnakers down to Middle Ground. From two o'clock on they rounded the lighthouse and came on the wind, which hauled into the northwest. Homeward bound as far as Eatons Neck it was a series of long and short legs, with plenty of inducement for working the tide in Smithtown Bay and for pitting wits against the elements. Quite a pert little breeze blew until 8:00 A.M. when it petered out and left a few of the unfortunates to straggle in under power.

But ten of the fourteen finished between 6:18 and 9:55, and with the application of the time allowances the first five of these were bunched within sixteen and a half minutes. This showed pretty good handicapping, as the first five were boats of as diverse design and rating as Bob Jacob's yawl *Nimbus*, the winner (rating 45); Phil LeBoutillier's sloop *Alsumar* (36); George Roosevelt's schooner *Mistress* (55); George Hubbard's converted "R" boat *Sally IX* (33); and my own cruising cutter *Hotspur* (29). In weatherly ability all five of them are on the close-winded side and so were favored by the conditions of the course — as weatherly boats usually are. But there was no special circumstance in the 50-mile run and beat to give advantage to a large boat in opposition to a small one, or to one rig against another. The handicapping was good, and the results proved it.

This year, fifteen boats of all sizes, from the big new ketch *Vamarie* to *Hotspur*, started on an ebb tide in a contest which resolved itself into a broad reach and a close reach. The northerly

(*Continued on page 82*)

Moth Class Boats Meet in First Annual Regatta

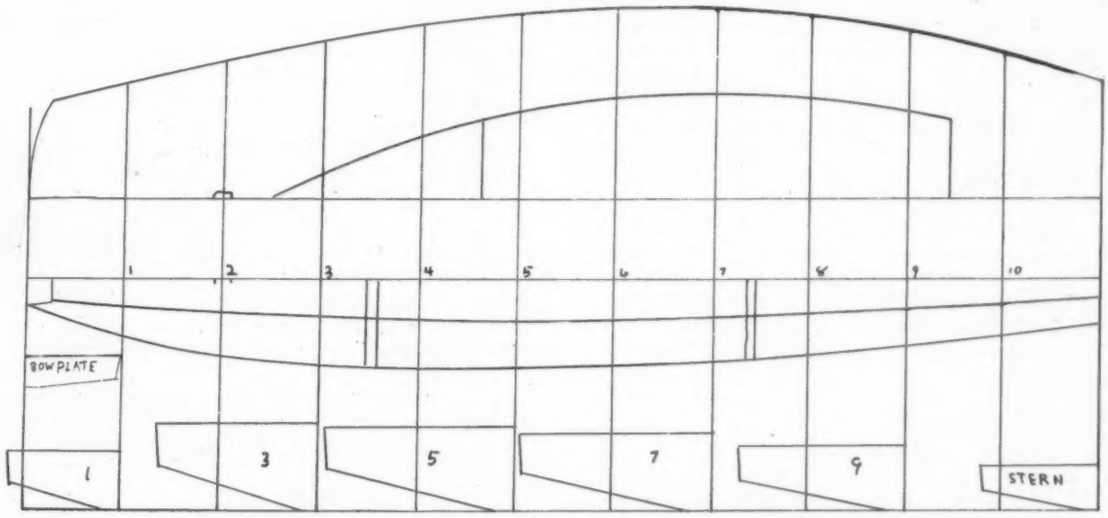
Large Fleet Gathers at Elizabeth City for Event

Start of Moth Class boats in championship race for the Antonia Trophy, sailed off Elizabeth City, N. C. Thirty-one boats started, H. Anderson, in "Leo," being the winner. Top, left, "Great Bear," which won four races out of five starts

THE first annual regatta of the National Moth Boat Association which was sailed on the Pasquotank River, off Elizabeth City, N. C., October 13th to 15th, brought together a fleet of between 30 and 40 of these little boats, which are gaining rapidly in popularity. Only 11 feet in length, with 65 square feet of measured sail area, the fleet that gathered for the first annual event came from all parts of the Atlantic Coast, from Barnegat Bay to Melbourne, Florida. The weather throughout the three days of racing was ideal for the little craft, all the races being sailed in moderate to strong breezes, except the first heat of the Interclub Team Race, for which only a light northeast breeze was blowing.

Four teams of five boats each, representing the Evening Star Yacht Club, of Atlantic City, the Daytona Beach Sailing Club, the Melbourne Yacht Club, and the Pasquotank River Yacht Club, fought it out the first day for the handsome Interclub Trophy. After sailing the first heat in a light wind which required 1 hour and 56 minutes to cover the two-lap course, the breeze piped up and the next two heats were sailed in fast time. The Atlantic City team won all three heats and finished with a point score of 220 for the match. The Pasquotank Y. C. was second with 170 points, the Daytona Beach crews took third place with 147, and the Melbourne Y. C. skippers gathered only 93 points. In these races the winning boat in each heat was *Great Bear*, a new Moth built by Joel Van Sant, which rolled up a total of 60 points for the three races — a perfect score.

The second day of racing opened with the National Gold Cup Race, a perpetual challenge trophy. This was sailed between six teams of two boats each, and the Evening Star Yacht Club again was the winner with 23



Lines of "Great Bear," 11-foot Moth Class boat designed and built by Joel Van Sant

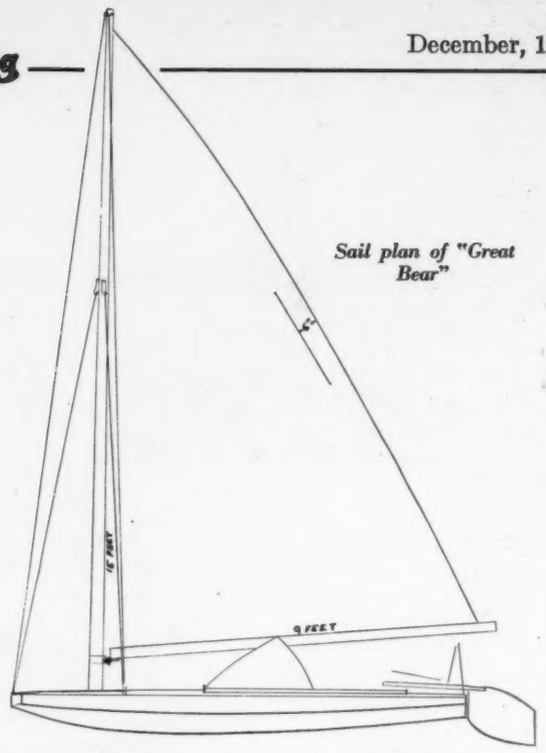
points to 19 points for the Daytona Beach Sailing Club, the runner-up.

In the afternoon the Antonia Trophy, which carries with it the world championship in the class, was hotly contested by a fleet of 31 boats. The race was open to Moth Class boats from any part of the world. The race was a long one, being five laps to the course, and was sailed in a heavy northeast wind which gave the skippers all they wanted. Harry Andrews, of Atlantic City, sailing *Leo*, scored a well-earned victory in the elapsed time of 1 hour and 38 minutes, *Evening Star*, sailed by William Conover, being second, and *Great Bear* third.

On the last day two championships were determined, one for boys, which brought out 20 starters, and one for girls, with 21 boats competing. The former event was won by *Great Bear*, with George Reichle at the tiller, and the latter by *Evening Star*, well sailed by Ruth Reid.

In this three-day series the new boat, *Great Bear*, designed and built by Capt. Joel Van Sant, one of the organizers of the Moth Class Association, distinguished herself by winning four firsts and one third place, in five races, being one of the outstanding boats of the regatta.

Built to the class limit, *Great Bear* is 11 feet long over all by 4 feet beam. The actual sail area, including a 6-inch roach, is 71 square feet, the fixed dimensions of the sail being 15 feet hoist by 9 feet on the foot. Battens are limited to four, not to exceed a total of 92 lineal inches. The mast height above deck is limited to 16½ feet, and the boom to not more than 9½ feet in length. Construction is simple and the cost very moderate.



Sail plan of "Great Bear"

Books For the Yachtsman

"Sail and Oar"

By Ernest Dade

(J. M. Dent and Sons, Ltd., London)

AN UNUSUAL book from England has just come to us that makes more than a passing appeal to the sailor. This is *Sail and Oar*, a collection of sketches and drawings of the always interesting North Sea fishing fleet that is to be found, winter and summer, plying its trade in one of the stormiest patches of water off the coast of Europe. The North Sea fishing fleet is as interesting, in its way, as the Gloucester fleet of Banks fishermen is on this side of the Atlantic. To the student of small seaworthy vessels, it is, perhaps, even more interesting because of the wider variety of types.

The drawings in this volume are by one who has, for fifty years, lived with and sailed in the boats that put out from the English East Coast ports. He is a real sailor as well as a real artist, and here he shows the boats, the men, and the methods of fishing in the North Sea before iron, steam and the internal combustion engine changed everything on the Dogger Bank. The boats were a picturesque lot, and the sketches possess the rare quality of work done on the spot, seen with the eye of the sailor, and without the use of a camera, which so often kills the real character of a drawing. In fact, so lifelike are the drawings that one can almost "smell" the fish. Under each sketch is a caption, telling of the features of rig or model, or explaining the method of fishing.

The North Sea fishing fleet is fortunate in having such a capable historian of its boats and its men as Ernest Dade. The book is one every marine library worthy of the name should have. The price is seven shillings six, translated into dollars at the time of purchase.

"The Last Slaver"

By Dr. George S. King

(G. P. Putnam's Sons, New York. $2.00)

A SKELETON in the closet of the New York Yacht Club has been made to rattle its bones by Dr. George S. King in his new book. The schooner yacht *Wanderer*, built as a pleasure yacht in 1857, one year later was sold to a member of the New York Yacht Club who ran her as a slaver, for one year, — under the burgee of the Club, — until her true mission was revealed, her owner expelled and her name expunged from the records.

On the background of fact, Dr. King has woven his story. "The Last Slaver" purports to give two years in the life of the boat as seen through the eyes of the third mate. This man, Kane, with one or two other members of the crew, signed on for a treasure hunt, only to discover, after losing sight of land, that they had become participants in the slave trade under one of the most brutal captains in that nefarious business. Kane is navigator, and much as he wants to leave the ship he knows that if they are captured the crew will all be hanged. The *Wanderer*, however, was able to show a clean pair of heels to all ships sighted in the two passages from the coast of Africa to Pirate's Island, 200 miles from Cuba, where the slaves were landed.

There is mutiny, rescue at sea, murder and sudden death before Kane with his few companions are able to wrest control from the captain and his cut-throat crew.

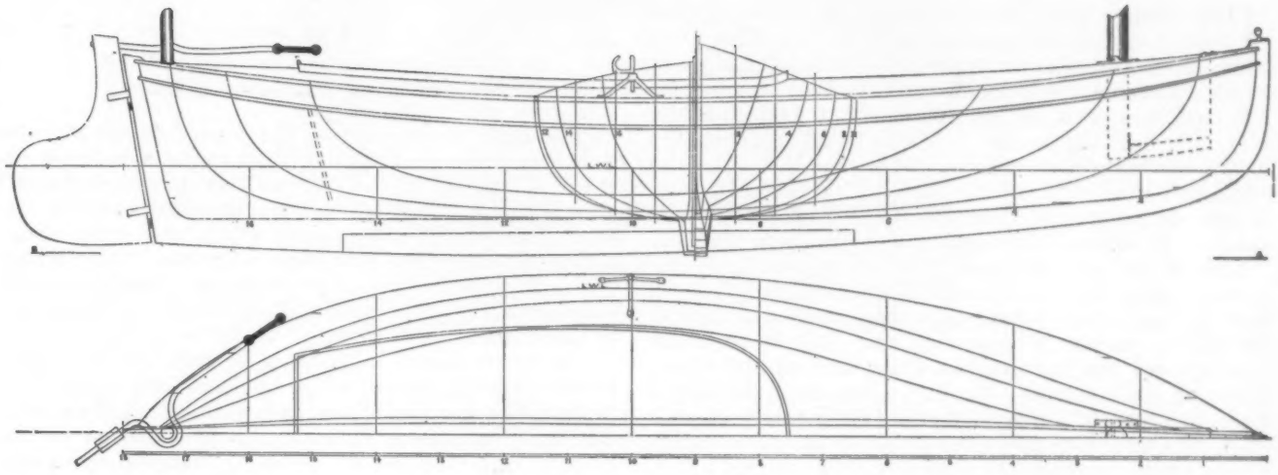
The book, a novel based on fact, makes good light reading.

"Iris"

An Eighteen-Foot Canoe Yawl

An Old Type Modernized

A sweet little 18-foot canoe yawl with a modern rig



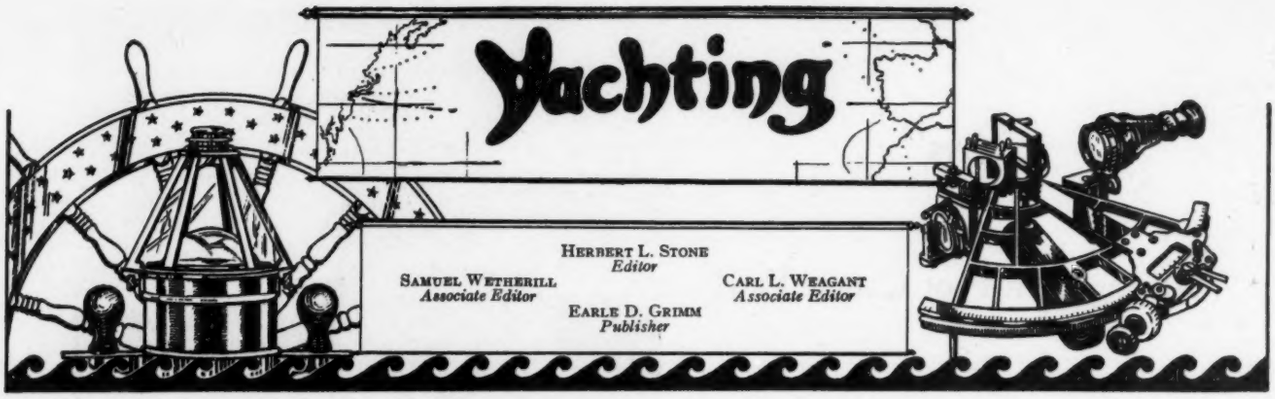
A VERY unusual little craft that is a fling back to forty years ago was built last year for Mr. A. W. Barlow, of Providence, R. I. This was an 18-foot canoe yawl, and so successful has she been that her plans, and photographs of the finished boat, are sure to arouse considerable interest, especially so at a time when small boats are becoming increasingly popular and are much in demand to meet the needs of shrunken incomes.

Desiring a small, able and fast small boat for sailing on Narragansett Bay, Mr. Barlow ran across the plans of this boat in a book by W. P. Stephens, *Canoe and Boat Building*, published in 1898. The plans in question were of the canoe yawl *Iris*, built in 1886–87 by J. A. Akester, of Hornsea, England, for Mr. H. Munroe. They showed such a sweet little craft, able and wholesome, that Mr. Barlow decided to build her. He and his son started work on the hull themselves, got out the keel, stem, stern timber and frames, and set her up. After completing the planking on both sides, they turned the work over to a boat builder, Herbert Salisbury, of Pawtuxet, R. I.

The dimensions of the *Iris*, as originally built, were as follows: l.o.a., 18 feet; waterline, 17 feet, 4 inches; beam, 5 feet; draft, 16 inches. In duplicating her the

(Continued on page 86)

Plans of "Iris," a canoe yawl designed in 1886, from which the boat shown above was built last year



EDITORIAL

America's Cup Challenge Stimulates the Sport

THE challenge for the America's Cup, which was received in October and accepted by the New York Yacht Club early in November, has already resulted in a quickened interest in yachting affairs that is sure to be reflected in a most active season afloat next summer. Not only will the racing between the Cup defenders hold the attention throughout the season, but under the stimulus of the international match a big fleet of yachts is sure to be out, and extensive programs centering around the defense campaign are already being planned.

Indeed, the year promises to be an international one in many respects. For in addition to the big match to be held in September, there will be an invasion of British Six-Metre yachts to race for the British-American Trophy and the Seawanhaka Cup; and on the Great Lakes we shall see the Canadian sailors from the Royal Canadian Yacht Club make another bid for the Canada's Cup, an emblem that means as much to Great Lakes sailors as the America's Cup does to those on salt water.

Another important event that may take on an international tinge is the Bermuda Race, which will be sailed this year under a new rule and which, in the number of entries, may break the record of 42 starters, made in 1930. At least one, and probably two starters from the Great Lakes will be seen in this event, for which two or three new yachts are already being designed or built.

We face, therefore, a particularly busy season. With one, and possibly two or more Cup yachts to be built, as well as several "Sixes," and perhaps a Twelve-Metre yacht or so to augment that fine class, several of the building yards should be kept pretty busy. And as most of the existing fleet of large yachts will be out, a number of them after several years of inactivity, the facilities of the repair yards should be taxed after several years of hard sledding. All of which is what has been badly needed.

There was a time, several years ago, when it was said that an America's Cup year always meant an off season in the sport. This was largely because the Cup match dominated the season to the exclusion of other events. While this may have been true when most of our yacht racing was between the larger yachts, it does not hold now, when the major part of the sport is in the smaller classes, which receive a distinct stimulus from an international race, and when every one who owns a yacht feels the urge to fit her out to follow the spectacle of a Cup defense campaign.

We're out of the doldrums, boys. Here comes the breeze — all hands trim sheets to catch it!

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An International Year in Power Boating

NOT only under sail does the coming season promise big things. In the power boat racing field the international aspect of the competition means increased interest all round. This will be apparent early in the year when the Florida racing will attract speed boat drivers from several European countries. Nine foreign entries from at least three countries are already assured, and a permanent international motor boat racing fixture in the United States seems to be in the making.

The international invasion of Florida will be largely in the outboard classes, which are ideal for international competition because of the ease with which the outfits can be transported. However, several drivers in the 12-litre class will be on hand to compete in events for this inboard class, which is very popular abroad. M. Maurice Vasseur, French champion in this class, has given assurance that he will be here this winter with a boat, as has Count Rossi, of Italy.

Rumors have it that a Canadian boat will be seen in some of our important events for the Gold Cup class next summer, and we also hear that Hubert Scott-Paine, who raced for the Harmsworth Cup last September at Detroit, will be back next summer in quest of this premier trophy with a new and more highly powered boat — and we hope a faster one. Mr. Scott-Paine's ability was proven in the race last September, and the new boat on which he is at work should justify expectations of a real race at Detroit. All in all, the prospects are as bright in this field as in the sailing end of the sport.

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Navigation Up to Date

THERE was a young man of Bordeaux
Who said, "If you're wanting to know
The correct G.M.T.,
Just listen to me."
And he sent it by ship's radio.

IN THE WORLD OF YACHTING

GEORGE REIS

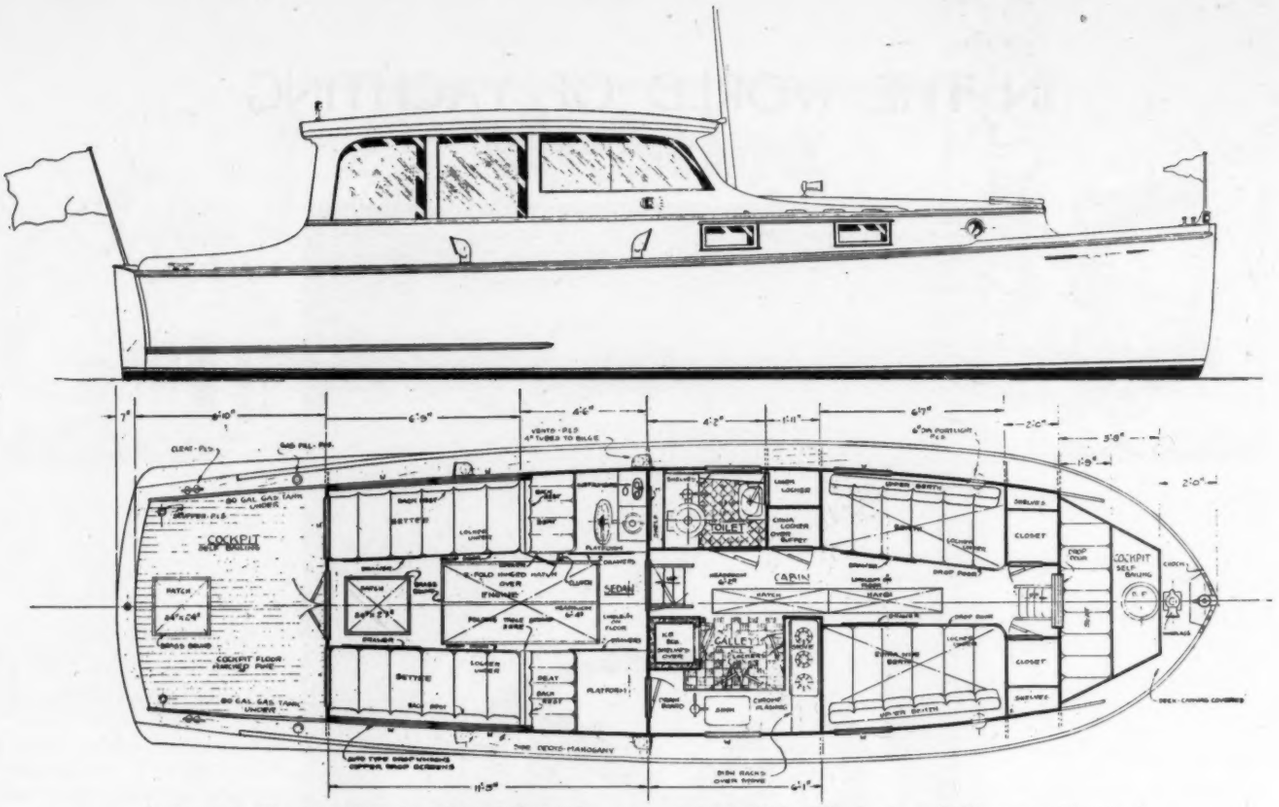
GEORGE REIS is one of motorboat racing's true Corinthians. The game boasts no better sportsman, no one who gets so much pure fun out of speedboat competition and the preparation therefor.

It seems fitting, then, that he should be the owner, revivifier and driver of that remarkable old hydroplane, "El Lagarto," which celebrated her eleventh year afloat in 1933 by scoring a grand slam in the National Sweepstakes, the Gold Cup and the President's Cup races.

He divides his time between the East and the West. In the summer he is a distinguished citizen of Lake George, N. Y., where he tinkers with "El Lagarto's" ten-year-old engine and experiments with the shingle bottom he put on her in 1931, the year that she began to go places at a gait entirely out of keeping with her age. He is mayor of the village of Bolton Landing on the lake and a deputy sheriff of Warren County. When the weather grows chill, he hastens to California and spends the winter in Pasadena.

Although Reis gained his first real recognition in 1931 when he won the National Sweepstakes and the President's Cup with "El Lagarto," he was driving in major competition years before we went into the European war. He used to handle Commodore Albert L. Judson's "Hawkeyes" and "Whippoorwills," and in 1920 was a member of the American team that went to Osborne Bay to wrest the Harmsworth Trophy from the British. He was to have driven "Whippoorwill," but she burned up three days before the race, so Reis sat on the beach while Wood carried off the trophy.

In years to come, if anyone is looking for someone worthy of the trust of a Harmsworth defense, or a challenge, the gentleman now famous as the trainer of the "Leaping Lizard" of Lake George would be more than a likely candidate.

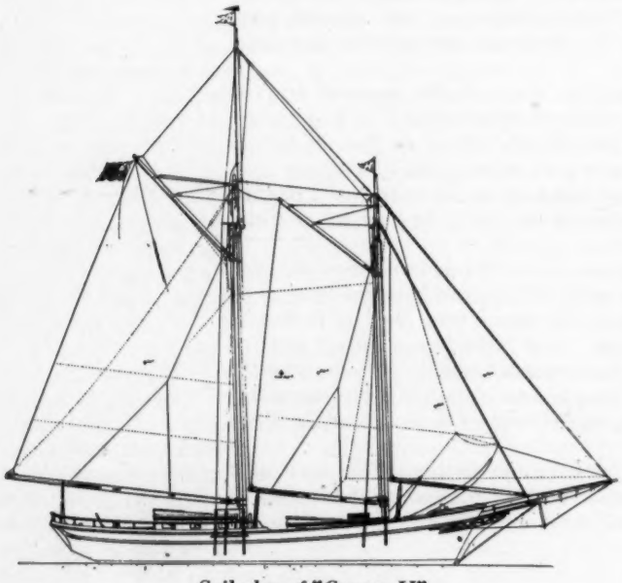


Outboard profile and cabin plan of the 39-foot sedan cruiser being built by Wheeler for a Baltimore yachtsman

A 39-Foot Wheeler Playmate Sedan

THE plans above show a 39-foot Playmate cruiser of the sedan type now being built by the Wheeler Shipyard, Inc., of Brooklyn, N. Y., for a prominent Baltimore yachtsman, which will be delivered in the spring. The hull is similar to other successful craft of this size and type turned out by the same firm, while the layout follows the wishes of the owner. Forward of the after cockpit is the sedan enclosure, well laid out and equipped for maximum comfort. The galley is in the main cabin, on the starboard side, with toilet room opposite. The main cabin has four berths, closets, etc., and there is a forward cockpit. A Sterling Dolphin motor should give a sustained 25-mile speed. She should make an ideal craft for fast day trips and short cruises.

"Coaster II," an Appealing Auxiliary Schooner



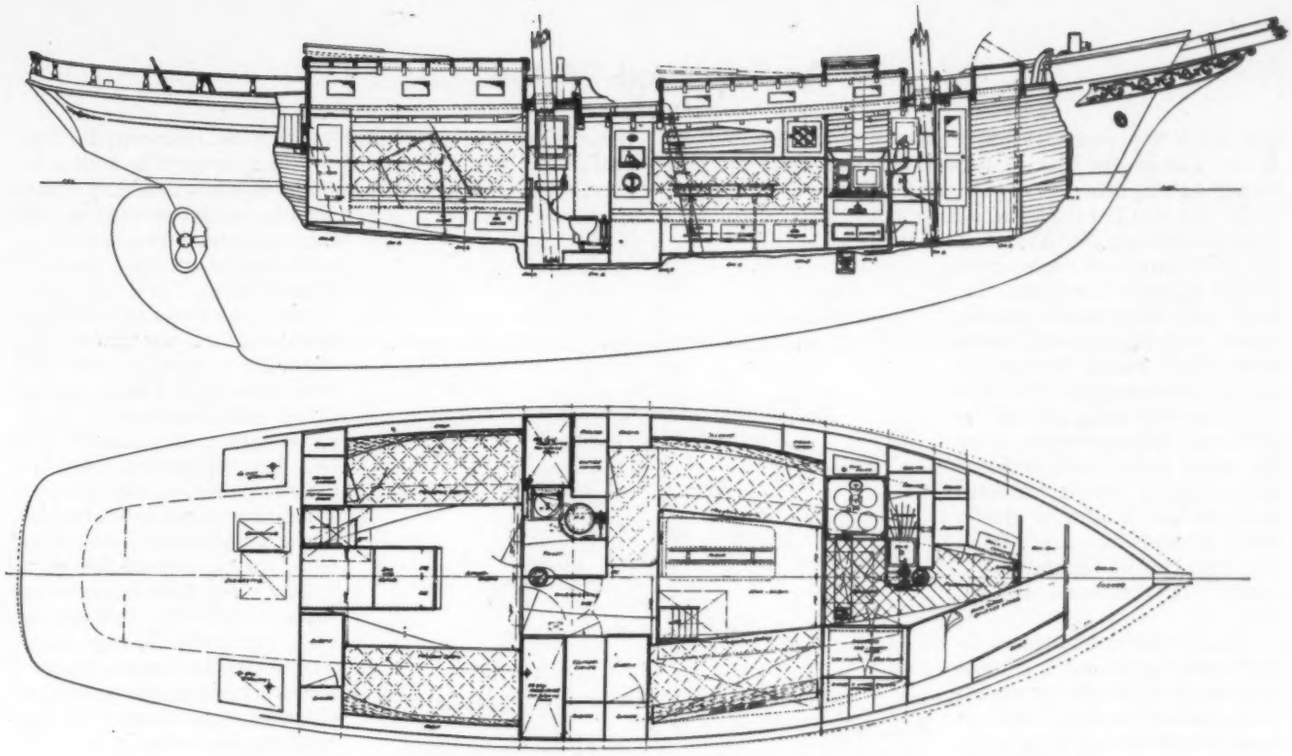
Sail plan of "Coaster II"

MANY of our readers will remember the 36-foot schooner *Coaster*, designed and built by Murray G. Peterson, of Marblehead, Massachusetts, for his own use, plans of which appeared in YACHTING for November, 1931. So successful did she turn out that Mr. Peterson designed and built a somewhat larger craft of the same type, also for his own use — *Coaster II*, whose plans appear on this and the following page. The new craft is very similar in appearance to the original boat, and after a season's use under varying conditions has proven to be a fine, comfortable cruising craft with good sailing qualities, and an excellent sail carrier in strong breezes. The dimensions: l.o.a. 42′ 7″; l.w.l. 35′ 2″; beam, 12′ 3″; draft, 6′ 6″; sail area, four lowers, 1005 sq. ft.

Coaster II is surprisingly roomy both on deck and below. The double cabin layout is used, giving a fine double stateroom aft with plenty of locker space, toilet room amidships to port and lockers, etc., opposite, and a very roomy main cabin with L-shaped seat, alcove, built-in radio, bureaus, etc. A fine galley, and forecastle for a paid hand, are forward.

A Sterling Neptune motor, 12–15 h.p. heavy duty type, gives a 7-knot speed with Hyde feathering wheel. A U. S. generating plant supplies current for batteries.

The plans reproduced in this section are the property of the designers under whose names they appear. Further information concerning any design should be addressed direct to the naval architect in question.

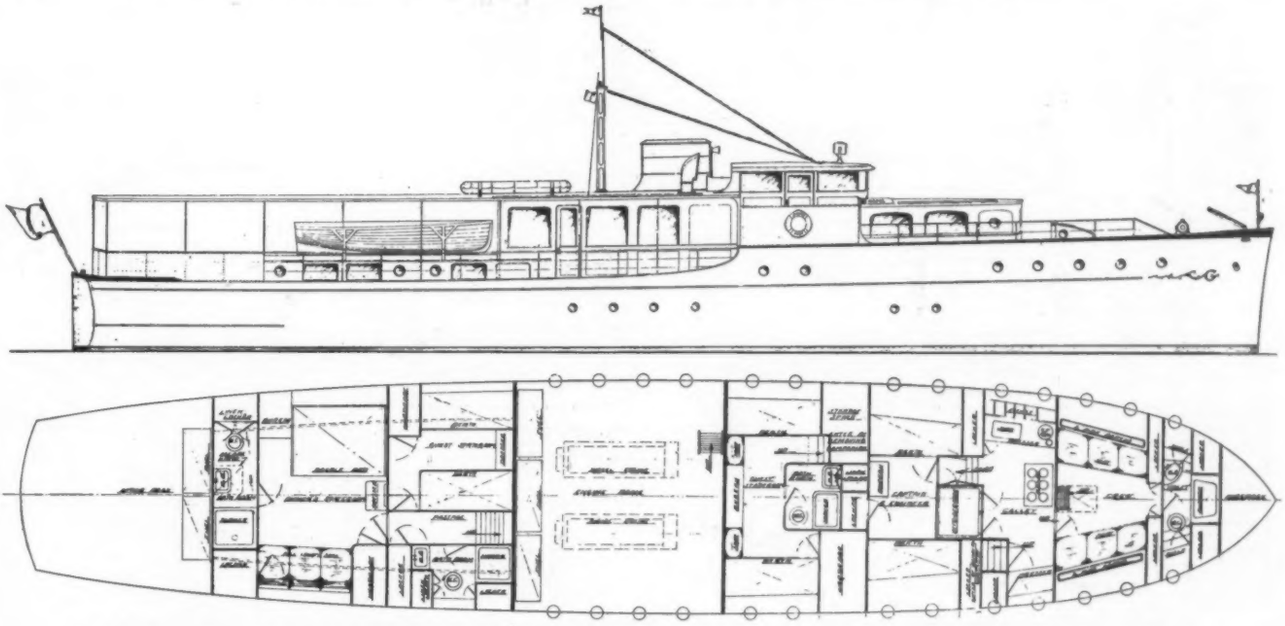


Inboard profile and interior accommodation plan of "Coaster II," described on preceding page

An Attractive 88-Foot Twin Screw Diesel Yacht

BELOW are the plans of an 88-foot, twin screw Diesel-powered yacht which the designers, Henry C. Grebe & Co., Inc., of Chicago, term a "small large yacht," and which they believe will be a forerunner of the trend of the next few years. Combining smart external appearance with a wealth of room below, she is an ideal type for almost every purpose. Small enough to be handled by a moderate crew, handy enough to go in and out of many delightful harbors not open to larger craft, she is yet large enough for open water cruising in comfort, and provides accommodations for comfortable life afloat over long periods of time. On a beam of 16′ 6″, she will have a cruising speed of 15 miles an hour.

Definite advantages in interior layout, as well as a powerful appearance, are secured in the design by the combination of a sunken deckhouse forward, pilot house with wing bridge on both sides, and a second deckhouse and trunk cabin aft. Vision from the pilot house is exceptionally good, and the wing bridges are invaluable in docking and close maneuvering.

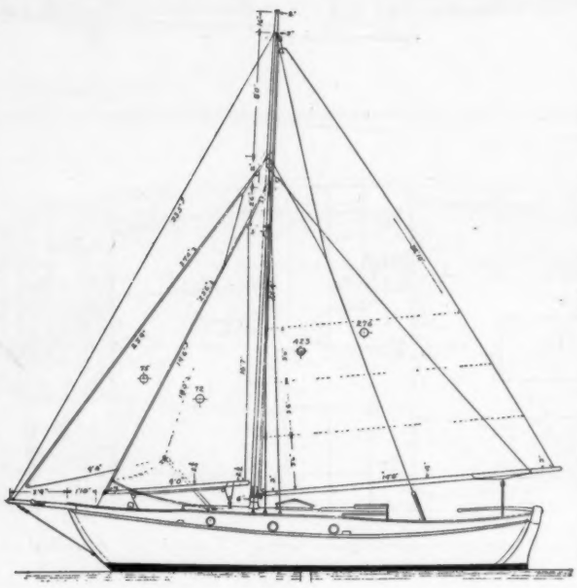


Outboard profile and interior accommodation plan of the 88-foot Diesel-powered cruiser designed by Henry C. Grebe & Co., Inc.

An Improved "Astrid"

IN THE September, 1932, issue of YACHTING an article by James S. Pitkin, describing the double-ended cutter *Astrid*, brought so many inquiries to her designer, L. D. (Larry) Huntington, of New Rochelle, N. Y., that Mr. Huntington has presented us with the plans of a new and improved *Astrid*, which are reproduced herewith. With slight changes in lines, ballast and interior layout, the new boat should be quite an improvement over her older sister, and perform even better to windward, even on her moderate draft. The dimensions are: l.o.a. 30′; l.w.l. 24′ 6″; beam, 9′ 6″; draft, 3′ 7″; sail area, 423 sq. ft.

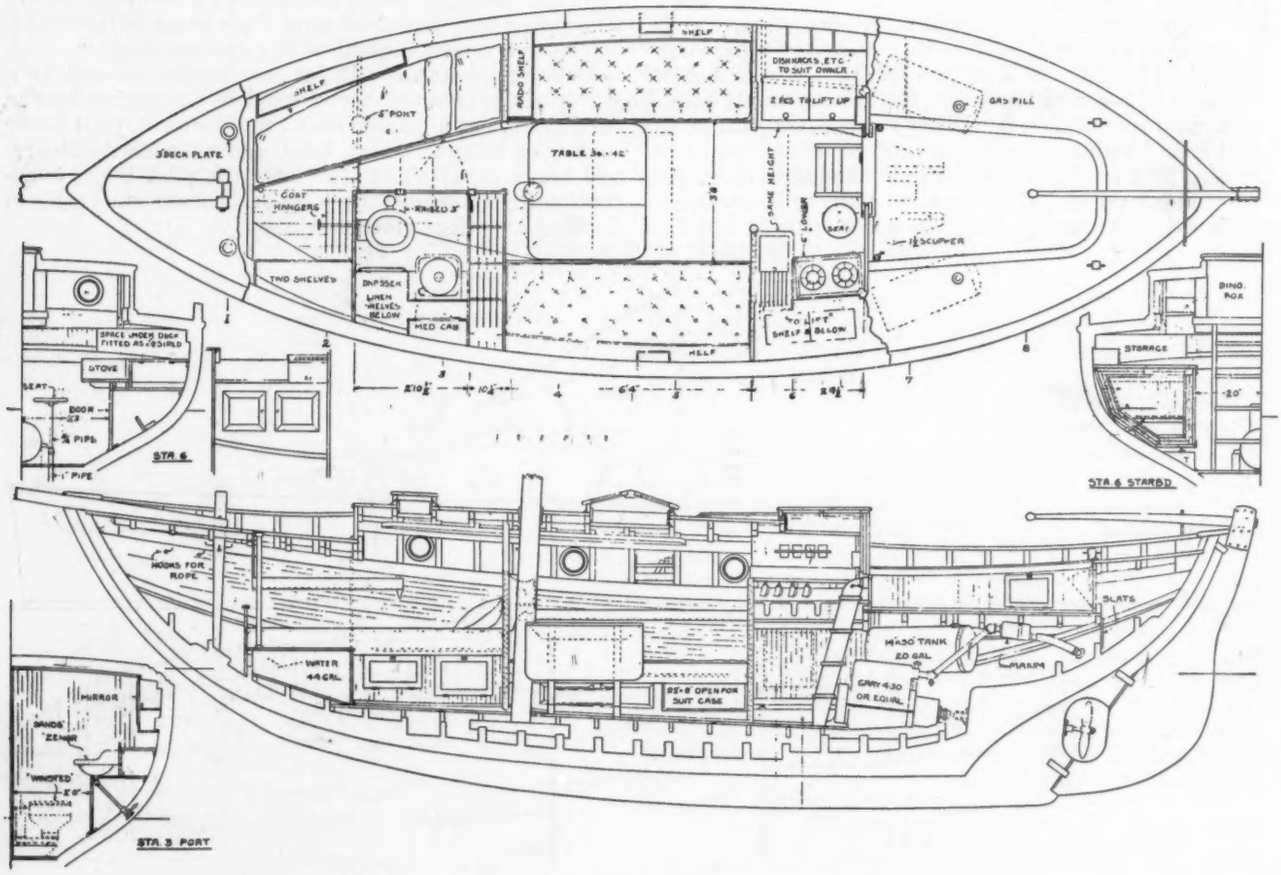
Two features of prime importance in a small cruiser are comfortable accommodations below decks, and an easily-handled rig. If in addition, one can get a dry, easy boat in a seaway, and a good performer to windward, coupled with moderate draft, so much the better. *Astrid* had these qualities, and Mr. Huntington believes the new craft to be just a bit better in every way. The hull is an excellent seagoing model of the well known double-ended variety, and the snug cutter rig has proved excellent from every angle on this size and type of craft.



Sail plan

The interior layout has been worked out from long experience in this size and type of craft. Three berths, toilet room forward to port, galley aft to starboard with ice box opposite. Lockers, drawers, shelves, etc., for personal and ship's gear. Sizable tanks for gasoline and water. Good storage space for grub.

The Gray 4-35 motor is installed well aft, out of the way, yet perfectly accessible. *Astrid* made better than 6 knots with far less power, so the new boat should do her stuff against strong currents or rough seas, and do it economically, besides. Forty gallons of gasoline are carried in two tanks aft, and 44 gallons of water in a tank forward.



Inboard profile, cabin plan and sections of the 30-foot double-ender designed by L. D. Huntington, Jr.

"Conquest"—Sloop, or Motor-Sailer?

THE plans below of *Conquest* show a rather unusual, and decidedly successful little craft completed last summer for Vice Commodore C. A. Sawyer, of the Boston Yacht Club. John G. Alden, her designer, calls her a motor-sailer, but after the Boston Yacht Club cruise, in which *Conquest* made a very creditable showing under sail, Commodore Sawyer prefers to call her an auxiliary sloop. The reader is left to choose sides as he may wish, with *Conquest's* plans before him, and the following dimensions to go by: l.o.a. 40′; l.w.l. 36′ 6″; draft, 4′; sail area, 706 sq. ft.; ballast, 7700 pounds.

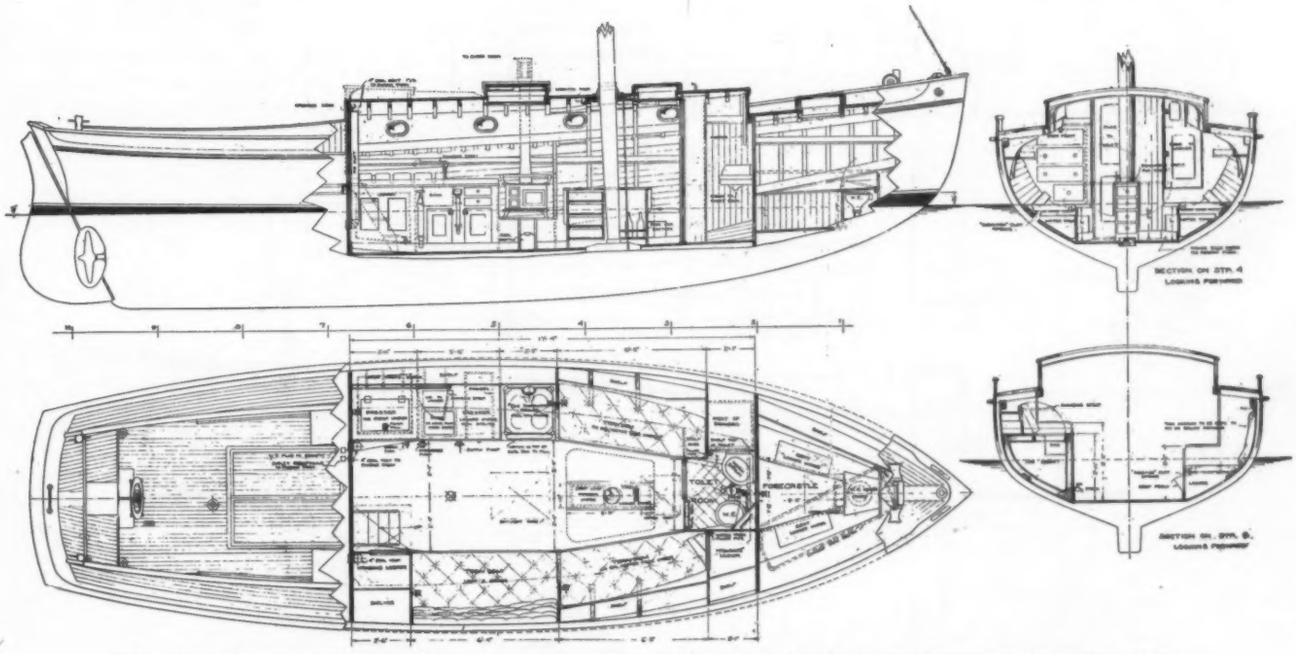
It is quite evident, from a study of the plans, that *Conquest* has many of the features desirable for speed under both sail and power. She has a long water line, moderate beam, sweet sections, and a long, raking keel. The iron keel ensures plenty of stability under sail. While the draft is moderate, there is good area of lateral plane, and she should hold on to windward in good style. The rig is moderate for a sailing craft, but the sloop rig is decidedly efficient on any point of sailing. Under power, her Kermath Sea Master, with reduction gear, pushes her along at a steady 9-knot clip, which is good traveling for a 40-foot craft only 36 feet on the water line. *Conquest* has seen some bad weather during the past season, and has proved to be very able, dry, easy in a seaway, and very easy to handle under either sail or power.

The cabin is unusual, being entirely open, and gives a sense of spaciousness and comfort seldom found in a 40-footer. Besides the three transom berths, a fourth berth may be arranged by transferring the spring back cushion from the starboard side to the flat platform made by the ice box, sink board, and dresser. A big, well-equipped galley is located aft on the port side, and a fine toilet room has been worked in at the forward end of the main cabin. An entirely separate forecastle, with toilet, etc., is provided for a paid hand.

The Kermath motor is under a flush hatch in the cockpit, entirely out of the way, yet instantly accessible. The engine space is well ventilated by an electric blower, and all controls are within easy reach of the helmsman. A 12-volt electric system, with oversize generator and batteries, furnishes ample current for starting the motor and lighting the ship.

In addition to fine room below decks, *Conquest's* big cockpit and ample deck space are features which make a strong appeal.

Sail plan of "Conquest"

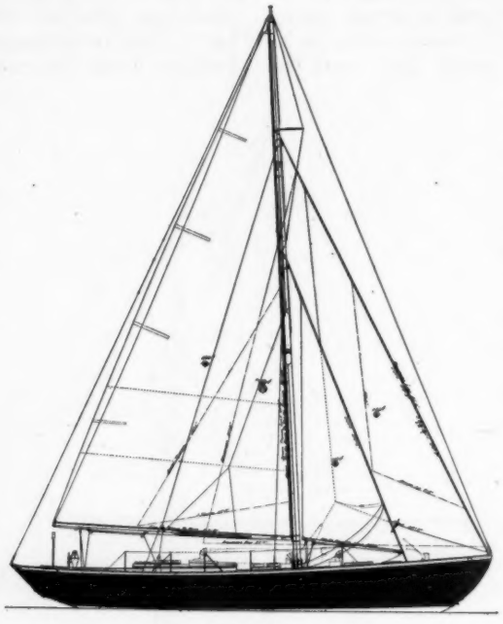


Inboard profile, interior accommodation plan, and sections of "Conquest," the 40-foot auxiliary sloop built from Alden designs for Vice Commodore C. A. Sawyer, of the Boston Yacht Club

Snug Rig and Moderate Draft for the Chesapeake

FOR cruising short-handed in Chesapeake Bay and southern waters, a cruising craft is limited to a draft of six feet, and must have a rig which the owner, with a bit of assistance now and then, can handle not only in fair weather, but in an emergency. The 47-foot cutter whose plans appear on this and the following page embodies both these features, and is a handsome, able craft into the bargain. She is from the board of Sparkman & Stephens, 11 East 44th Street, New York City, and is now being built by M. M. Davis & Sons, of Solomons, Maryland, for Lawrence M. Bailliere, of Gibson Island, Maryland. Her dimensions are as follows: l.o.a. 47′ 2″; l.w.l. 35′ 8″; beam, 11′ 9″; draft, 6′; displacement, 32,000 pounds; outside lead ballast, 11,200 pounds; sail area, 929 sq. ft.

The chief purpose of the design was to get a roomy and reasonably smart-sailing boat of limited draft and moderate sail area. A fine, husky hull is shown, with moderately short ends and ample freeboard, the latter feature giving full head room under a flush deck, making it unnecessary to step the mast through a cabin trunk. Though the ballast is not as low down as in most craft of this size, the am ple beam will give sufficient stability, especially with the rig used. The sections are firm, and the fore and aft lines easy and sweeping. She should perform well to windward, and be at her best running and reaching.

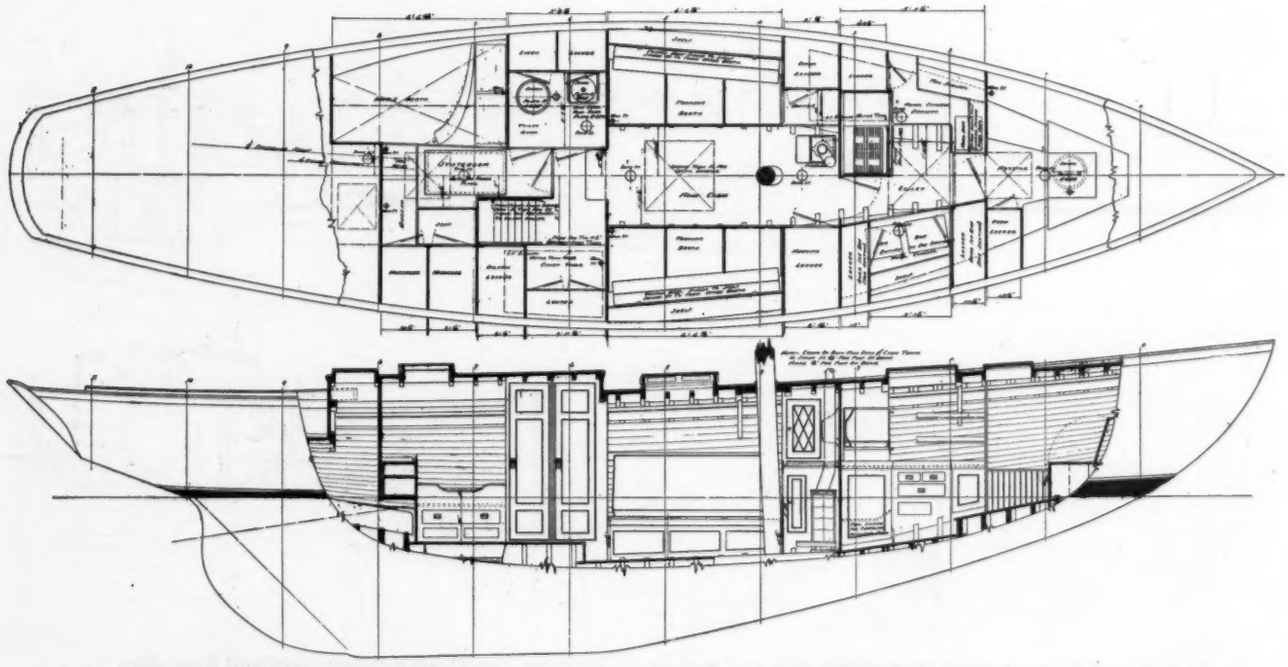


Sail plan

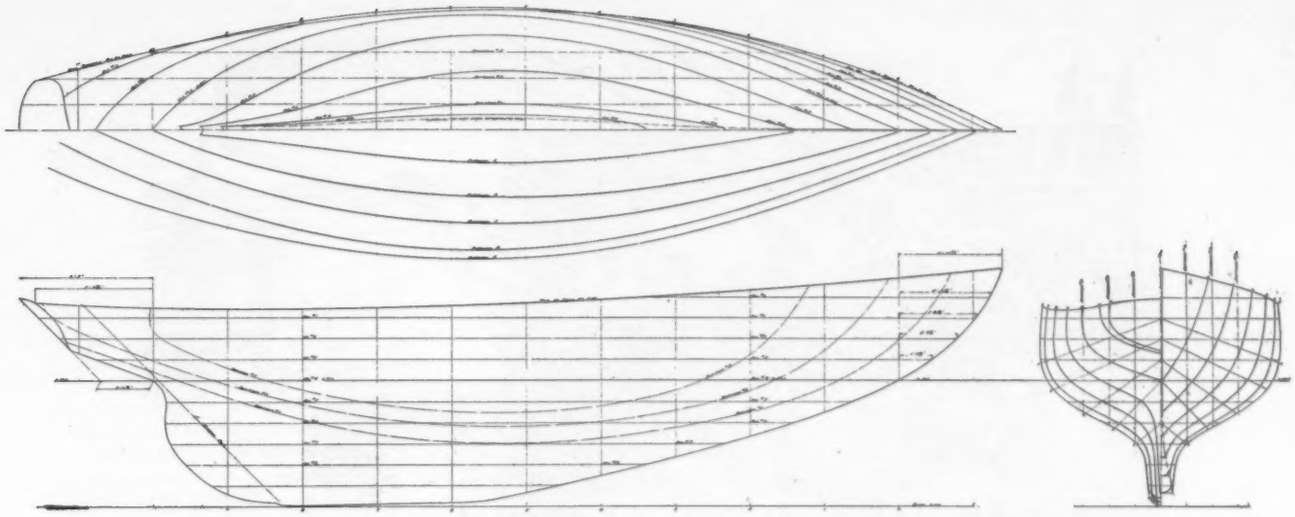
As the owner and his wife will handle her alone at times, a snug cutter rig was adopted, with mainsail of small size. The mast is stayed so that runners will seldom be found necessary, and with winches on halliards and sheets, one person will be able to hoist and trim the mainsail and headsails. A yawl or ketch rig would fit her very well, but for the sake of simplicity the snug cutter rig, all inboard, was chosen.

The interior layout is somewhat unique, and was drawn to suit the owner's particular requirements. An unusually large double stateroom, with double berth, bureau and two large wardrobes, is made possible by the use of a compact, but powerful, motor installation. A good toilet room is abreast the companion steps to port, and the navigator's compartment opposite is a reflection of the owner's cruising and ocean racing experience. The main cabin amidships has two transom berths, two folding uppers, and a tile stove, with hanging locker just forward on the starboard side. The athwartships galley is large, well arranged, and well equipped, with an especially large ice box. A large forepeak assures a wealth of stowage space.

The specifications call for mahogany planking, bronze fastenings and hardware, teak decks and trim, etc. The motor is a Gray 4-20, V-drive, with Hyde feathering wheel on shaft emerging on the port quarter.



Inboard profile and interior accommodation plan of the 47-foot cutter designed by Sparkman & Stephens for Lawrence M. Bailliere



Lines and body plan of the cutter building for Lawrence M. Bailliere, described on preceding page

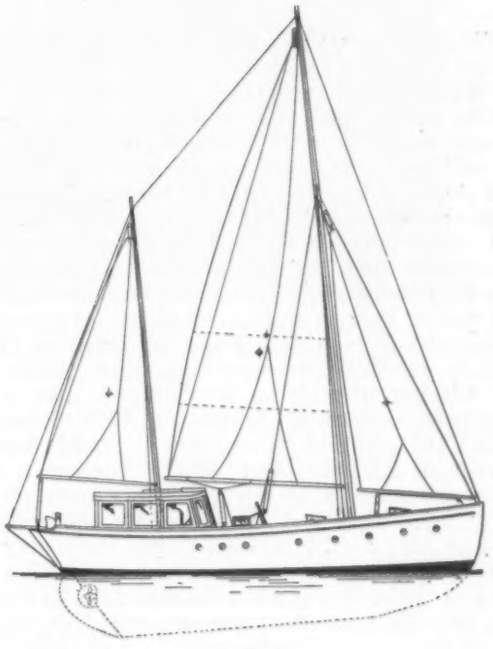
Good Sailing Qualities and Ample Power

BELOW are the plans of a 50-foot cruising craft which the designer, H. N. Whittelsey, of Whittelsey and Whittelsey, 521 Fifth Avenue, New York, believes to be the answer for the man who wants a true 50-50 cruiser which will really perform well under sail, and step along at 10 knots under power. She has ample freeboard, plenty of beam, and heavy deadrise, with four tons of outside ballast and a ton inside. Following are the principal dimensions: l.o.a. 50′; l.w.l. 45′; beam, 16′; draft, 7′; sail area, 900 sq. ft.

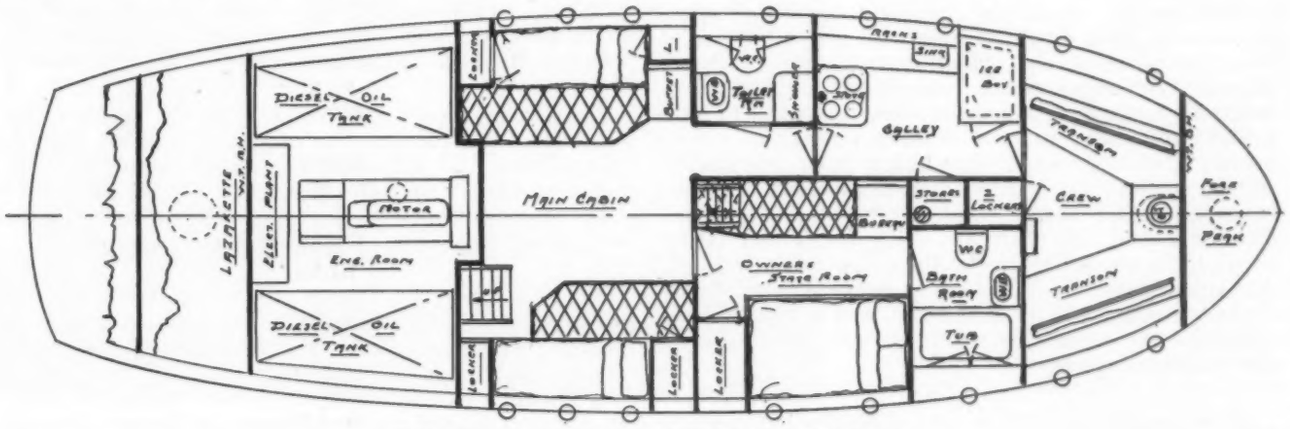
The snug ketch rig was adopted as being the most handy and suitable, and well adapted for setting of light sails. The drag of the keel down to 7 feet provides ample lateral plane for windward work, and sufficient grip to prevent "skidding" in a quartering sea.

The motor, a 100 h.p. Winton Diesel, is installed under the cockpit floor, and should give a sustained 10-knot speed. A Homelite supplies electric current, with batteries and gasoline tank in the cockpit. The large covered cockpit is enclosed with Triplex non-shatterable glass, and may be closed in aft by means of swing-back doors meeting in the center.

The accommodations below decks consist of a main cabin sleeping four, owner's stateroom with double berth, toilet room, bath room, galley, forepeak for crew, and plenty of lockers and other stowage space. She is a rugged, able craft, and should be able to go anywhere.



Sail plan



Cabin plan of motor-sailer designed by H. N. Whittelsey

Under the Lee of the Longboat

by Cap Stan

NOW that the Royal Yacht Squadron's challenge for the America's Cup has been accepted by the New York Yacht Club everybody is asking how many defenders will be built, who will build them, when the races will be held, and so on and so on. Well, these items will be announced in due time. It has been settled that the first race will be held off Newport on September 15th, and I hear that the conditions of the match will be very similar to those which governed the last contest in 1930. No one knows how many new boats will be built. We do know, however, that the challenger will be named *Endeavour*, that Nicholson is her designer, and that she is even now under construction. And I have it on excellent authority that there will be absolutely nothing freakish in her design — just a fine, normal boat, with an up-to-date rig. Don't know, but shouldn't be surprised to see Mr. T. O. M. Sopwith, her owner, at the helm. And "Mike" Vanderbilt at the helm of the defender. Here's a pointer: Keep your eye on the "Yachting Notes" each month in this magazine, penned by Major M. Heckstall-Smith. He is very close indeed to *Endeavour's* designer, and an excellent observer and critic. If you want the real dope on the challenger, he is the gentleman who can give it to you.

+ + +

Although pretty well tied down with restrictions, the Frostbiters are constantly making interesting experiments with their dinghies. Fish pole masts bid fair to take the place of the old gunter rig, having shown superiority in all weathers. Loose-footed, or free-footed, mainsails are getting a good try-out, and seem to have a slight advantage in light weather, but not in a good breeze. Rotating masts are losing their popularity, though I don't know why. Wooden centerboards are replacing metal boards, and are getting longer and narrower. And the boats are going faster and faster. Freak hulls are noticeable by their absence — the well-developed rowboat hull having proved best so far. Developments come thick and fast, and it will be interesting for the experts to watch what happens between now and next spring.

+ + +

Some months ago I wrote a lot of stuff about mooring pennants, something about painting them with a mixture of copper paint and kerosene for protection against rot, marine growths, etc. Well, this spring I ran across some rope, impregnated with what seemed to be ordinary red copper paint, turned out by a well-known rope maker. Three pennants made of this rope were tried out last summer in Larchmont Harbor — put out in May and taken up in October. The pennants showed practically no deterioration, while barnacles, weeds and worms were noticeable by their absence. Other pennants in the same harbor were in various stages of disintegration — some weren't fit to hold a rowboat. Get wise, Mates — you'll sleep better on those windy nights, and fewer wrecks will line the harbor fronts after the hard blows, of which we invariably get two or three each season, generally in the latter part.

+ + +

"Barging" at the start of the dinghy races held on November 11th and 12th at Essex was promptly "called" by a competent and fearless committee, and the offending craft promptly disqualified. Those who were wrong, and knew it, had no complaint to offer. Those who were wrong, but ignorant of the rules, had the rules explained to them and went their way, sadder but wiser skippers. The wrong-doers have been taught their lesson. Fine work on the part of the new but flourishing Essex Yacht Club. Congratulations for helping a much-needed reform along. Race committees of much larger and older clubs might well follow the example of Essex, and clean up messy starts everywhere.

+ + +

A Mother Cary's chicken flew in the window the other day and twittered to me privately that Hubert Scott-Paine had achieved his fondest wish — he has been promised the Rolls Royce motors which he has been longing for. Will there be a Harmsworth Race next year? Watch that British craft go!

+ + +

Some of the 1934 motor cars are going to appear without any front axles, from some advance dope I heard the other day. Will there be some similar astonishing innovation in the 1934 motor boats? Trot up to the Motor Boat Show in January and see for yourself. It opens at Grand Central Palace on Friday, January 19th, and is going to be bigger and better than last year.

Of Interest to the Skipper

New Boats Ordered and Building, Including a Class J Defender

REPORTS from naval architects and yacht brokers show that the following new boats have been ordered and that most of them are already under construction. The list does not pretend to cover the large number of stock boats that have been purchased recently or ordered for the spring, or other boats about which no reports were available. However, the list is both representative and encouraging.

A Class J boat for Harold Vanderbilt and syndicate, designed by Burgess & Donaldson and building at Herreshoff's.

A 55-foot power cruiser for J. C. Groome, Jr., of Philadelphia, designed by Thomas D. Bowes and building at Rogers', Jonesport, Me.

A 42-foot centerboard schooner for J. P. Holt, of Philadelphia, designed by Thomas D. Bowes and building at the Westville Boat Works, N. J.

A 66-foot ketch for Joseph H. Plumb, of Marion, Mass., designed by Paine and building at Graves', Marblehead.

A 50-foot schooner, designed by Ralph Winslow and building at Fred Lawley's.

A 32-foot cutter for J. Thorton Mills, designed by C. D. Mower and building at Julius Petersen's, Nyack, N. Y.

A 47-foot cutter for L. M. Bailliere, of Baltimore, designed by Sparkman & Stephens and building at M. M. Davis', Solomons Island, Md.

A 43-foot auxiliary yawl for Frank Richmond, of Providence, designed by Sparkman & Stephens and building at Lemos Brothers', Riverside, R. I.

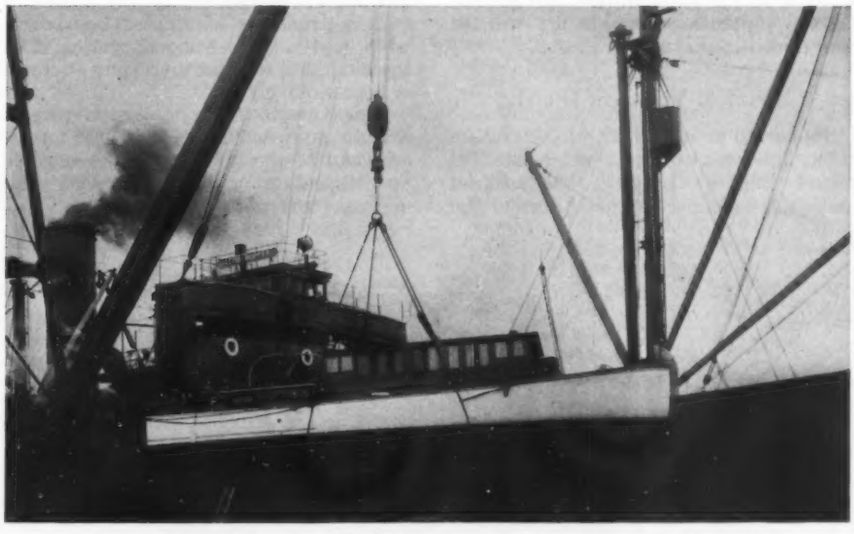
A 50-foot yawl for Dave H. Morris, Jr., of Rye, designed by Sparkman & Stephens. Builder not selected.

A Six-Meter for J. Seward Johnson, designed by Sparkman & Stephens for the Seawanhaka Cup defense.

A 38-foot ketch for R. S. Kellogg, of New York, designed by Sparkman & Stephens. Builder not selected.

A 40-foot ketch designed by Wm. H. Hand, Jr., building at the Minneford Yacht Yard.

An Italian displacement boat, winner of the Lake of Bracciano races. She is powered with an American Gray Blue Streak motor of the 125-cubic-inch class



A Matthews 46-foot cruiser being loaded aboard the "Jacob Ruppert," bound for service in the Antarctic with the Byrd Expedition

Matthews Cruiser for the Byrd Expedition

With Admiral Byrd on his second Antarctic Expedition goes a Matthews 46-foot Day Cruiser of the enclosed bridge type. This able craft was loaded aboard the *Jacob Ruppert*, supply ship of the expedition.

Three years ago Admiral Byrd first started his operation of a Matthews stock cruiser — a Matthews 38-foot Sport Cruiser, and early this season his purchase of a strictly stock Matthews "46" Enclosed Bridge Day Cruiser was not looked upon as being connected with the proposed expedition as the boat was stock-built and powered with a regular Sterling Petrel engine and a 25 h.p. Universal auxiliary. The fact that a stock boat was selected for such rigorous service is a remarkable tribute to the builders and engine makers.

Many will be interested in knowing of what use a boat of this size would be to Admiral Byrd in such a rigorous undertaking. It will be used as a dispatch vessel plying between various points where outposts may be stationed and reached more easily by water, and to keep contact between the larger craft and headquarters ashore.

New Palmer-Hercules Conversion

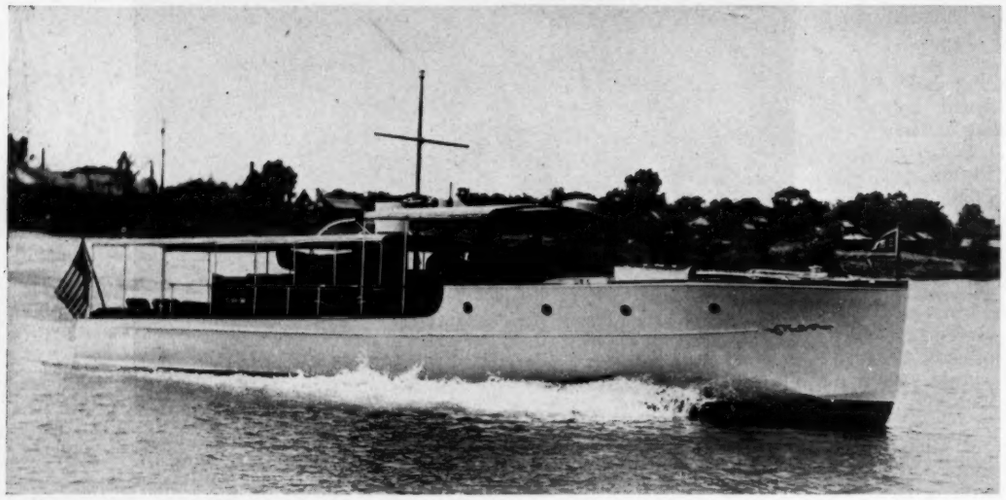
Palmer Bros., of Cos Cob, Conn. are now ready to market the new Palmer-Hercules Conversion, an engine developing 50 horsepower at 1750 r.p.m. and 62 horsepower at 2200 r.p.m.

With the new Palmer ball-bearing high-speed clutch, water-cooled and filtered pressure lubricating oil system, they offer an engine to run at higher speeds than their former products, but with the same stamina and dependability that has always characterized Palmer engines. This conversion is a real marine job. In the first place it is not a converted, light automobile engine, but a heavy duty truck engine.

The new Palmer High Speed Clutch has been added to this engine, giving 100 per cent efficiency ahead and 80 per cent efficiency in reverse. The clutch is fully enclosed to keep out sand and salt water and the discs run in oil. Ball bearings and hardened and ground gears insure quietness and long life. The action of the Palmer Clutch is positive — when the control lever is put in position it stays put. This feature is of utmost value in the operation of small boats as it enables one man to set his clutch and be free to go forward to pick up a buoy or take a line.

This conversion is equipped with a standard make of carburetor and backfire trap, Purolator oil filter, Autolite starting, generating and ignition system, and tachometer outlet at the bottom of the distributor shaft.

A 16-foot Chris-Craft runabout, one of the many new Chris-Craft models which will be displayed at the New York Boat Show and which will feature level riding



"Miss Liberty," a 45-foot Great Lakes cruiser owned by J. A. Sumerlee, of Detroit, is powered with a pair of Universal 8-cylinder reduction drive engines which give her a speed of 19 m.p.h.

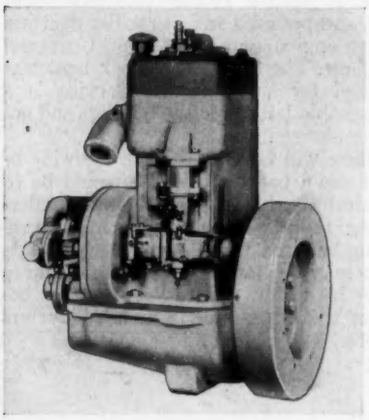
The new engine is compact, measuring only 16¾″ in height, 17″ in width, and 52½″ in length. It weighs only 840 lbs. and sells for $650 f.o.b. Cos Cob, Conn. Because of its size, weight, and low price, this engine should meet with popular acclaim and be considered a desirable power plant unit for standardized boats. The Palmer reputation for quality will be maintained in this new product.

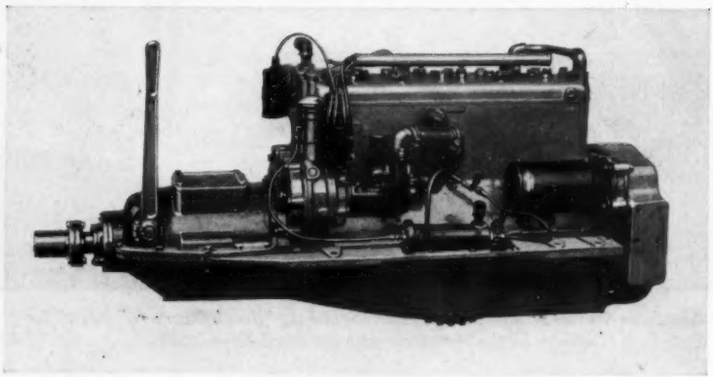
New Hill Vee-Eight Diesel

Supported by a firm faith in the future of the light-weight Diesel engine, the Hill Diesel Engine Company has utilized their past experience and facilities for the development of a new engine, 100-200 h.p., which will find favor with yachtsmen and automotive engineers because of its low weight per horsepower and compactness.

The Vee arrangement of the cylinders not only provides the shortest possible fore-and-aft length, but it contributes to extreme rigidity, eliminates crankshaft whip, and holds the necessary weight to the minimum without sacrificing strength or accessibility.

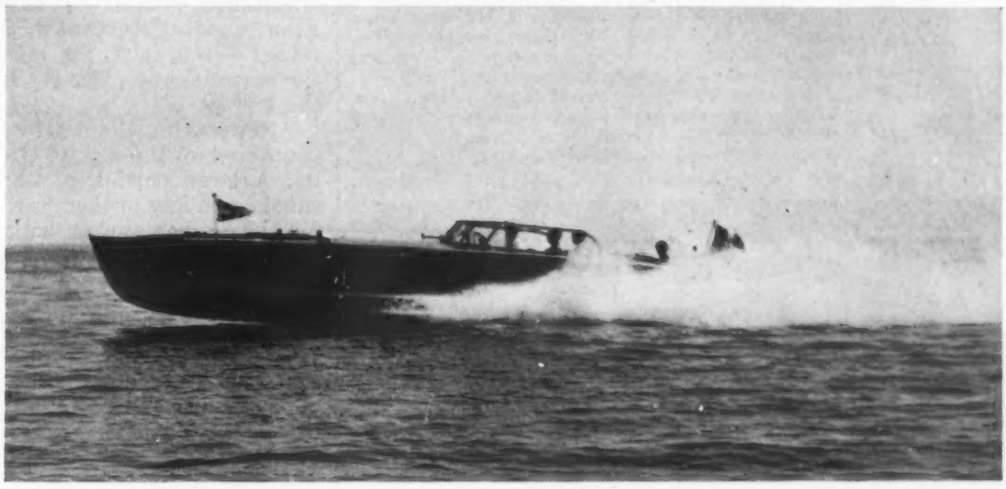
Reference to the photograph reveals smooth, compact design, with the auxiliaries out of the way, but still accessible for inspection without removing unnecessary covers.





The new Palmer-Hercules conversion, a 62 h.p. engine. At left, the new Universal Fisherman, a single-cylinder 6–8 h.p. engine for $160

An 18-foot Swiss runabout which steps along at 30 m.p.h. with a Kermath-Farr 4–45. She is similar in design to American runabouts of equal length



"Ambro," a handsome Italian 32-foot convertible runabout. Twin Scripps motors of 165 h.p. each drive her 46 m.p.h.

The low height, 30¼ inches, makes the engine adaptable for under-bridge-deck installation, and the low center of gravity is desirable in any type of boat. The total length without reduction gear is but 80 inches. Provision is made for the attachment of reduction gears of any reasonable ratio. A powerful yet sensitive governor and a charging generator are mounted in the Vee between the cylinder blocks.

The governor is in full control of the injection pumps throughout the entire range of speed, therefore the reverse gear may be maneuvered at will without the necessity of juggling the control, or racing the engine to prevent stalling. The 32-volt starting motor is equipped with Bendix friction gear meshing with a ring gear on the flywheel.

The new engine is equipped, of course, with the standard Hill system, which has proved so satisfactory in hundreds of engines, in all kinds of service, throughout the world. Bosch injection pumps, with slight modifications, equipped with their standard advance and retard device, assure proper metering of the fuel and equal distribution of the load throughout the eight cylinders. Low temperature starting ability without preheaters or spark plugs is one of the features of the Hill fuel system.

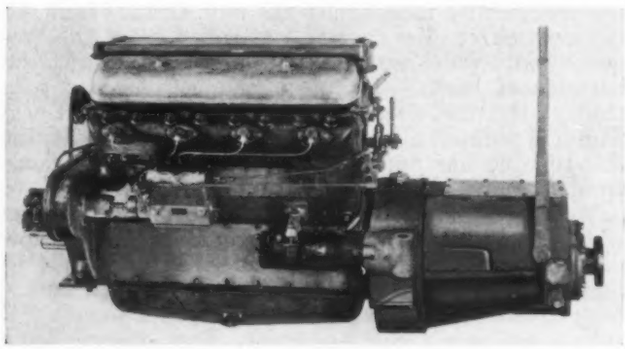
The absence of fine orifices, and the low injection pressure contribute to the reliability and the easy maintenance of the fuel system. The injection pressures are not higher than 1500 pounds, and the smallest orifice is 0.02 inches. The exhaust is clear at all speeds to the maximum horsepower, and the fuel consumption is under five-tenths of a pound per horsepower-hour.

New Scripps Model F-6

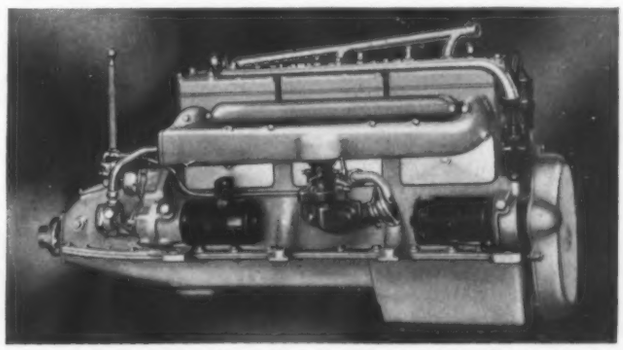
Consistent with its policy, established more than a quarter of a century ago, always to give the boat owner the best in engineering, material, workmanship and performance, the Scripps Motor Company has made some important changes in its standard model F-6.

The improved model F-6, which incorporates all of the Scripps fundamental principles, is now made available to boat builders and individuals in two distinct types, medium speed and high speed, each designed for a specific purpose. The first, rated at 80 h.p. at 2000 r.p.m., is to satisfy a demand for moderate speed with sufficient power to turn the larger propeller wheels required for heavier hulls. The second, which develops 120 h.p. at 3000 r.p.m., is designed for the high speeds demanded of lighter craft, where propeller r.p.m. is necessary for maximum performance.

A Zenith updraft 1½-inch balanced carburetor, marine type, is now used, to which is connected a specially-designed and approved flame arrestor. A Scripps-designed breather tube from the carburetor intake to the crankcase absorbs the fumes and odors so often present in the engine compartment. For greater economy of fuel consumption and smoother acceleration, the former manifold has been replaced by one of improved Scripps design.



The new 100–200 h.p. Vee-eight Hill-Diesel engine



The 1934 Scripps model F-6 incorporates many new features

Three Elco Cruisers

...at today's prices for delivery next spring

TODAY'S unprecedented economic situation produces a golden opportunity for the canny boat-buyer! The few remaining of these three Elco models were built when costs were lowest, and were priced accordingly. With material and building costs already up we cannot build to these low prices again. But the buyers who order these particular cruisers now can take delivery next spring *at this year's prices and without any storage charge.* Your present boat, whether afloat or stored, can form part payment, too. (You can have immediate delivery, of course, if you want to take your boat South.)

The Veedette 31. A fast cruiser with unusual cockpit seating space aft, cabin for four and forward cockpit. Speed 18-20 m. p. h. **$4,350.**

The Cruisette 35. A home afloat for six. Forward cockpit; cabin and convertable Elco deck-cabin; sunshine cockpit aft. **$6,450.**

The Elco 38. A luxurious cruiser with two separate cabins. The spacious bridge deck is convertible to a deck-house at will. **$10,750.**

These beautiful, seaworthy cruisers are built to the same high standards as the fine Elco custom-built yachts. Dashing of line, they are still essentially *livable.* Head-room . . . leg-room . . . elbow-room aplenty. Berths for six-footers. And a cost of upkeep that is astonishingly low.

The above prices hold only on orders prior to general price revisions. Inspect these Elcos immediately at Port Elco, or write for full information.

PORT ELCO
247 Park Ave. (at 46th St.) N. Y. C.
Wickersham 2-3830
PLANT AND MARINE BASIN
The Elco Works, Bayonne, N. J.

Elco CRUISERS

Florida Bound!

(Continued from page 32)

emerging from Mosquito Lagoon into the Indian River, it is big water for the little fellow. While it is all shoal water, looking at it from the yachtsman's point of view, there are times when a 40-footer will be glad to hunt a hole for a quiet night at anchor.

On the upper Indian River, which is wide, there is always, of course, a good lee under either weather shore, but there are no places of refuge when the wind is up or down the river, that is, north or south. Just above Eau Gallie, at Eau Gallie itself, and at Crane Creek, at Melbourne, there are places that leave nothing to be desired as a harbor. Horse Creek is a deep dent in the highland with shelter from any wind without too much easting in it. Eau Gallie — well, there's a harbor that will rival Solomon's Island, up on the Chesapeake. It is perfectly landlocked, with six feet of water — and peace supreme. From Crane Creek south there are no good holes for refuge — but then, the moment the yachtsman enters the narrows, any place is a harbor, no matter how small the cruiser.

After leaving the narrows, "big water" is again encountered all the way to Great Pocket, at St. Lucie Inlet. A large portion of this long run is through dug canals, and any of them are quiet. However, it does call for the proper anchor light at night, and while these waters are not, as a rule, navigated much at night by pleasure craft, there are many local tugboats and barges using it day and night, especially now that "speed" is the word down here in finishing this inland waterway.

To recapitulate: From St. John's River to Great Pocket (St. Lucie Inlet) the yachtsman will find six feet of water, all so splendidly marked as to make it a crime to get out of the channel. From Great Pocket to Lake Worth several dredges will likely be encountered. This goes also for the reach from Matanzas Inlet to the Halifax River, north of Ormond. And from Lake Worth to the boundary line between Palm Beach and Broward Counties dredging is now under way. By the time our northern visitors get here, or at least by the time they go back, the above reaches will resemble bee hives.

Now a word about those old-time Jonah places. Frankly, it will be hard to recognize them. Once crooked places have been straightened; as a general thing, where blind as to markings, they are now plain; where shallow with doubtful depth, they have been deepened. To reassure former visitors, I mention a few of the old sore spots that have been healed.

In the St. Augustine Canal the cypress stumps and snags have been blown to smithereens. The oyster bars near New Smyrna have been subdued. The crooks of Indian River narrows now shoot straighter. The bad bars between the narrows and Fort Pierce have been eliminated. The worst place of all, in my opinion, Gilbert's Bar, at St. Lucie Inlet, has been made the best. A fine set of ahead ranges show the way. Grant's farm, 15 miles south of Melbourne — so called from the frequency with which we used to till the soil there with the bottoms of boats — is but a memory. As you pass through the new, deepened channel it looks as if Uncle Sam had pumped all the sand in the world from it. But this time he has pumped it where it will never cause trouble again — high and dry on the mainland.

Would you like to go to sea, or to come in from sea while cruising? In that case, use any of the fine government maintained and marked inlets as you come to them. You can depend on any of them and you cannot miss them if you would — Fernandina, Jacksonville (St. John's entrance), St. Augustine, Fort Pierce, Lake Worth, Port Everglades and Miami.

1⅝" diameter Monel Metal Shafts...

AMPLE FOR 3200 H. P. EACH IN MISS AMERICA X

See what a test these Monel Metal propeller shafts had to pass....

Flawless..Tough..Rust-Proof

Strength alone is not enough in shafts that must transmit the 6,400 horse power thrust that sends Miss America over the water at 120 miles an hour.

Such shafts must be free from any suspicion of a flaw in their structure to stand the vibrations of such gruelling speed.

They must be tough to withstand the terrific shocks encountered.

They must be absolutely proof against rust and (on most boats) able to resist the corrosion of sea water.

Gar Wood's Own Selection

True, a difficult combination to demand of a single metal.

Underbody view of Miss America X, showing Monel Metal shafts and propellers. The shafts are 1⅝" diameter. Monel Metal propellers mfd. by Federal-Mogul Corp., Detroit.

But, in the words of Gar Wood himself:

"*Monel Metal was my selection because I knew it would meet these requirements.* For exactly the same reason I specified Monel Metal Federal-Mogul Tru-Pitch propellers. The performance of both shafting and propellers in the Harmsworth race *justified their selection.*"

Let us send you complete information about Monel Metal propeller shafts. And ask your regular boatyard mechanic about them...he is the man to install them.

THE INTERNATIONAL NICKEL CO., INC., 67 Wall Street, New York, N. Y.

MONEL METAL

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

TRADE MARK
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The Brig Rig

(*Continued from page 39*)

William Price, of Baltimore, built the *Hornet*, and most of the later brigs seemed to have copied the Baltimore type of hull. The brig *Perry*, 10 guns, built at Norfolk in 1843, shows a strong similarity to the Baltimore model, as did many of the schooners built for naval use.

The *Perry* is 105 feet long, 25 feet beam, and 11 feet 6 inches depth of hold, and 286 tons measurement. Unlike the old style of round ship, she shows a straight floor with considerable deadrise extending well fore and aft throughout the length of her bottom, and a straighter side line along her topsides. Aloft, her masts had that excessive rake characteristic of the Baltimore vessels. All trimmed so deeply by the stern that it was necessary to throw the sails aft so that the side pressure on the hull would balance with the pressure on the sails.

The *Perry* was considered a fast sailer and, after she was tried out and it was determined how much ballast she needed, she could carry her topgallants'ls with any frigate in the U. S. Navy. When she made her first cruise to Hong Kong by way of Rio and Cape Town, in 1844, she had only about three tons of ballast; but this was doubled on her second cruise and finally eight and one-quarter tons was found to be what she needed.

In October, 1846, she was blown ashore and dismasted on the Florida coast during a hurricane, but she was floated and made Philadelphia in December under a jury rig.

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Down the Dalmatian Coast

(*Continued from page 42*)

wide and when the nets are not there a ship can pass. Abdul took us safely under the bridge and we tied up alongside an Italian steamer that makes regular runs down the river and to San Juan de Medua, an Italian island close to the Albanian coast. The captain told me that he loses weight every time he goes through that whirlpool. His ship draws five feet of water.

Scutari, with a population of 30,000, is probably the most original town in Europe. It is difficult to classify — I think it is just thoroughly Albanian. There is not a tourist in town, not even a German. Moth-eaten crumbling minarets, great, rambling stone-covered Turkish gateways, latticed windows, little shaggy Albanian horses that always gallop, open bazaars and strange food, innumerable barber shops and shoemakers, bakeries making two-foot cartwheels of hard cornbread, woodworking shops displaying gaudily painted spinning wheels, cradles and hope chests, and in every square *Shverla* players, their music shrill and off key. Everyone is in some sort of native dress, depending on the part of the country from which he has come.

"You write to America that Albania is going to be very modern — in five years there will be no costumes, only 'western' clothes," the chief of police told me. He thought he ought to apologize. He would not have approved of my purchase of crimson shoes turned up at the toes and a white fez. But he was very cordial and put free Albanian visés on our passports, which we had not gotten because the nearest Albanian consulate had been in Belgrade.

"Don't try to go out across the bar if there are breakers," the captain of the Italian ship advised us. When we got there we could hear the waves breaking on the bar half a mile away. Another *Sirocco* was blowing. "*Ne dobro*" — no good. When we reached the entrance

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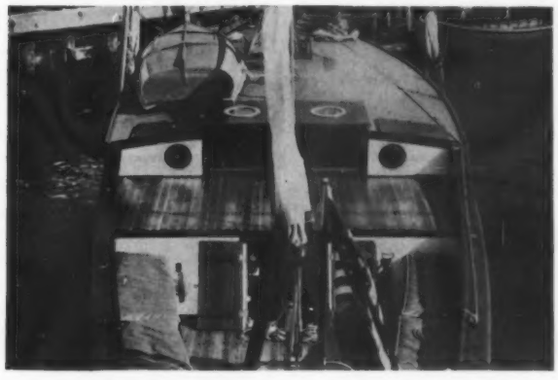

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there was no doubt in the pilot's mind. We ran in behind the densely wooded island at the delta to get out of the wind and ran the bow hard up on the mud shore.

At five in the morning the wind shifted suddenly and the water in the river dropped a foot in ten minutes, leaving us stuck firmly in the mud. After an hour of digging, heaving, and prying, we came off and went over to the pilot's town to consult him. The old sea was still running and the bar impassable.

The next morning we started for the bar, following close in the wake of the Italian steamer, which had come down the river the night before. The channel changes after every *Sirocco* and the pilot goes ahead in a small boat to sound for the narrow entrance.

An hour later we were off the southernmost Jugo Slav port, Ulcinj. The old town is built out on a bold promontory. Its crumbling stone walls encircle windowless, deserted houses. The aspect of the place is grey and forlorn, as though the inhabitants had given up their struggle against the barren, windswept coast.

We stopped at Bar (Antivari) to enter Jugo Slavia officially and to call on Archbishop Nicholas, whom I had met the year before on the Rhine. He was delighted to see us and we all stayed to an enormous lunch. From his palace, surrounded by large rose gardens, one can see for miles out to sea. I asked the Archbishop if he wouldn't like to go to Scutari with us another time. "Oh, no," he said mysteriously, "I can't possibly go into Albania."

From the Archbishop's terrace the sea looked beautiful and peaceful as it stretched away toward Budva to the north. But there was nothing so peaceful about the *Borina* that greeted us as we left Antivari Roads, throwing spray in our faces as we plunged into it. It was only a few hours' run to Budva, so we kept going, a bit wet and so tossed about that no one mentioned tea.

We arrived in Budva in a pouring rain. The harbormaster was intensely national, and nasty about it. He was disgruntled because we had been to Albania — couldn't see why anyone wanted to go there. We drank a glass of wine together to put him in better spirits. It was very good wine — *Chianti* — that we had bought in Scutari. Then he caught sight of the label. "*Italianisher!*" he exclaimed, and would drink no more of it.

The next day it was raining still. My crew had to return home in a few days, so the three left by automobile for Dubrovnik to hunt for another stabilized ship bound for New York. For two days I played ping-pong at the hotel while the weather wore itself out, and then it turned so fine that I stayed two more to swim on the sand beaches. Budva is one of the most charmingly situated towns in Jugo Slavia. It juts out into a beautiful bay to form a good harbor on one side and sandy bathing beaches on the other. The surrounding mountains, the rocky promontories, and the islands in the bay are various shades of green after the fresh rains, turning to deep blue as they fade away in the distance toward Albania. Budva is a fine, walled town with about 500 residents. The cramped little streets wandering aimlessly through the town and ending in innumerable squares remind one of Venice. There is, of course, no wheeled traffic inside the gates.

I asked my ping-pong partners, two boys from Prag, to come back to Dubrovnik with me. They put their things on board and bought a live, six-pound lobster to take home. But we had not reckoned on the patriotic harbormaster. "These boys came on the Jugo Slav steamer and they must go back on the steamer!" he declared. We argued and fought with him. It was no use; he would call the police. He then wanted to know why I had allowed my friends to leave by automobile. It was against the rules. I explained that they were seasick and

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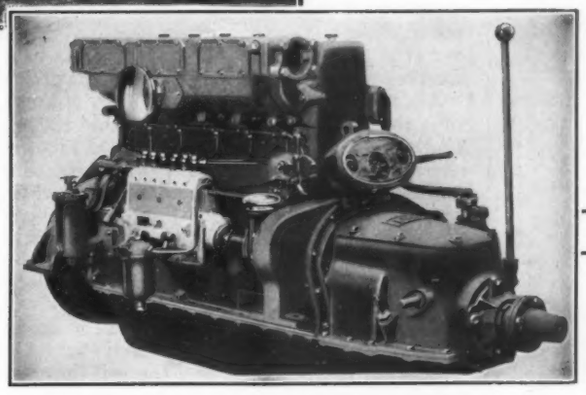

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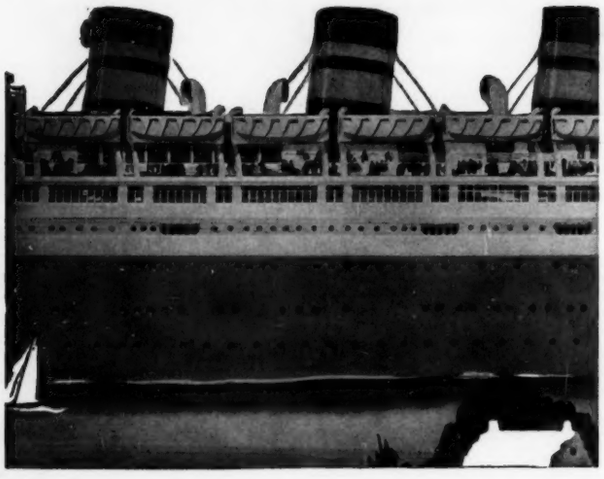

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that his country had damn rotten weather. For four hours he kept me in his office while he filled out a paper that finally contained ten lines.

Wishing all harbormasters at the bottom of the sea, I sailed from Budva leaving the boys with their lobster standing on the quay. Late that night, after all harbormasters were in bed, I arrived safely back in Dubrovnik, answering journalist Charles' oft repeated supplication, "I hope you live to tell the story."

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Letters and Correspondence

(*Continued from page 60*)

air strengthened after the start to such purpose that all competitors rounded the Middle Ground before the west-going current had set in with force, thus depriving the larger and faster boats of a tidal advantage which they usually hold over the craft at the bottom of the list. Yet the wind freshened still more on the close reach home and backed toward the northwest, so that the typical Sound chop that accompanies this wind slowed the smaller craft and offset the benefit of the swift reach out. Thus the conditions of the course were again averaged and favored no one type of yacht more than another. As in last year's event, the race was a pretty good test of the rating rule.

Again the results proved the efficacy of the rule. On corrected time the first ten boats finished within sixteen minutes of one another. *Nimbus* again won the race, 2 minutes and 11 seconds ahead of J. R. Aron's *Countess*, which placed second. *Vamarie*, scratch boat, finished first, and on corrected time wrested third place from *Hotspur*, smallest entry, by 14 seconds. *Hotspur* nipped in ahead of *Alsumar*, the fifth boat, with a margin of 25 seconds. Only 6 minutes and 27 seconds separated the fifth from the first, and that, I contend, is an achievement to make any regatta committee happy.

So, Skipper, now that I've told you of the simplicity and the workability of the New Rochelle club's rule, I hope you will urge the slide rule specialists and the sail limiters to stop masterminding it in formulating the rules of next summer's events. I don't claim that so simple a rule would work in a race of sufficient importance to foster the building of rule-beaters. I do my little bit toward boosting it because it promotes spontaneous racing, and because spontaneity is a priceless attribute of sport that we always lose as soon as we begin to get serious and mathematical.

ALFRED F. LOOMIS

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The Evolution of a Type

(*Continued from page 27*)

over the forward end of the cockpit. But above-water appearance is really unimportant; the shape below water is what tells the story. The underbody of *Water Witch* is designed on sailing yacht lines and she will go to windward under sail alone, and perform well on all points of sailing without using her engine. In service, the sails, or some of them, are set most of the time. By hoisting the mizzen alone and sheeting it flat, the boat has the easy swing of the windjammer with none of the jerky roll of the motor boat. Even in rather a nasty slop, and when the wind is light, the steadying effect of the canvas is remarkable. The sails act as stabilizers, reducing rolling to the minimum and making for comfort.

The deck shelter fitted in most of the medium-sized and larger craft of this type is an attractive feature. The helmsman is protected from wind and spray, charts may be spread out in a dry place, and navigation is easy. Perhaps the race of yachtsmen is getting softer, but we notice that even out-and-out sailing yachts are being fitted with the same sort of shelter in the "dog house" or sunken deck cabin. While on these boats the man at the wheel is out in the open, where he can keep a watchful eye aloft, the dog house makes a fine place for the afterguard in bad weather or when much water is flying.

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to 105 feet. They have done pretty much everything in the way of cruising, including West Indies voyages and Transatlantic passages. In general, the boats of this class combine the best features of the auxiliary and the motor cruiser. The auxiliary, as we know her today, is primarily a sailing yacht with more or less power installed for use when the wind fails or comes out ahead so far that she cannot lay her course. But she carries almost as much sail as the boat which depends solely on the wind, and has as much gear to be manhandled. She takes as large a crew to handle her properly, and usually draws as much water. The motor-sailer carries less sail, but sufficient to push her along at a smart rate in a good breeze, and a fair-sized power plant. While she may be a bit sluggish in light weather, under those conditions she would use power. When it is a question of getting to windward in a hurry, she may use sail and power, sailing closer to the wind than the sailing yacht, or make the run under the engine alone, keeping some sail set to act as a stabilizer. The owner whose time afloat may be limited can cruise in such a boat and make a time table with the assurance of reaching port when he plans to do so.

In the design of the hull, the motor-sailer need not have the deep draft nor the stability of the sailing yacht. With less canvas, she needs less stability, with no lead mine hung beneath her keel. This moderate draft allows her to enter more than one snug harbor from which a deeper draft vessel may be excluded. Not being required to be especially good to windward, she can get along with less lateral plane, which also means moderate draft. Her beam is usually ample, giving plenty of deck space and plenty of room below. Her model usually has plenty of deadrise and liberal displacement. (Most motor boats would be better for more displacement.) She will drive easily under power, and even when the sails are furled, her motion will be better than that of the average gas boat.

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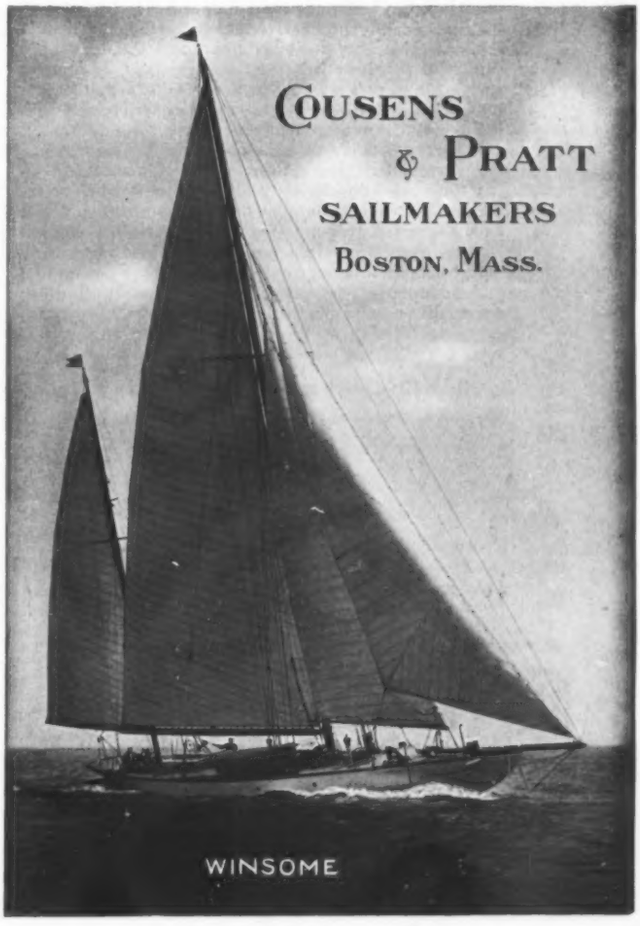

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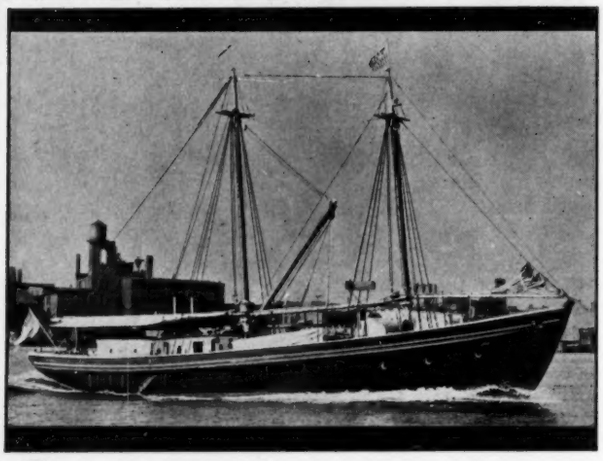

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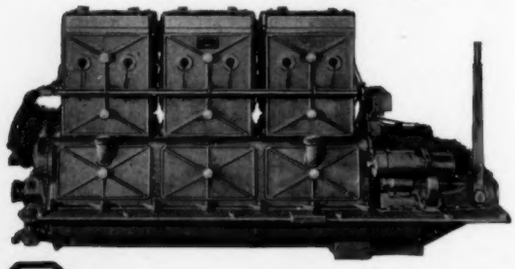
The U. S. C. G. Vinces is another in the series of boats that has recently installed Murray & Tregurtha marine engines. This very heavily-built Coast Guard supply ship, that regularly operates from Eastport, Maine, to Galveston, Texas, is now powered with a pair of our M-O-6 direct drive fuel-oil Engines, equipped with the Shore carburetor-manifold system. The Vinces is 100 x 22 x 9 and now has a top cruising speed of 9¾ knots and a sustained cruising speed of 9 knots.

If you are considering building a new boat or replacing your present engines, a thorough acquaintance with Murray & Tregurtha fuel-oil and gasoline engines is recommended before arriving at a decision. They may be used wherever dependable power is essential and economical, smooth operation is required. They are quality engines that will serve and satisfy for many, many years. May we send further information?

Distributor for New York District: F. Benjamin Sexton, 125 Lafayette Street, New York City



M&T

MURRAY & TREGURTHA INC.
NORTH QUINCY, MASS.

At present there seems to be a demand for more sail and consequent greater speed under canvas. This means, of course, more work in handling sail and perhaps increased crews for a small increase in speed. Also, greater expense of rig, both initial and for upkeep. Some owners will want more speed under power, and, here again, there will be greater expense for only a little more speed, with, perhaps, a temptation to cut down on the beam and approach a less healthy type. The well-designed motor-sailer has a sailing yacht hull below water, no matter what her topsides may be, nor how her superstructure is built up. To preserve the advantages of easy driving and smooth motion, we cannot depart widely from the normal model. But there are endless variations that may be made from the parent type to meet the needs of different owners.

At present the motor-sailer seems to be not a coming type of cruising yacht, but one that has "arrived." It will be extremely interesting to observe its future development.

\+ + +

"Iris"

(*Continued from page 63*)

only change made in the plans was in adding four inches to the keel, making her draft 20 inches. This was thought desirable to insure better windward qualities, as there is no centerboard. There are 460 pounds of lead set into the keel, constituting the only ballast. After sailing her for two seasons, the owner says that she is quite fast, has good windward qualities, carries her sail well, and is very dry for so small a boat.

The sail plan was changed somewhat, and instead of the lug rig, at that time common on canoes, a gunter mainsail was used, tall and narrow, and a jib-headed mizzen, the sail area being as follows: mainsail, 168 sq. ft.; mizzen, 25 sq. ft.; total, 193 sq. ft.

The boat is completely decked except for the large open cockpit, capable of accommodating several persons. This cockpit is covered, when desired, by a light, removable hatch, under which it is possible to sleep in comfort.

The hull is carvel-built and is amply strong, and she is not a canoe in any sense of the word, but a real little boat, having, perhaps, twice the beam of the normal American canoe. As one studies the lines and looks at the pictures of the completed job, he is struck by the beauty of the model and the symmetry of the lines. Although designed over 45 years ago, few boats of this size today can give her anything in the way of looks, or, perhaps, in the way of sailing qualities.

As to cost, it ought to be possible to get such a job turned out by a professional boat builder, including sails and gear, for $500. or $600., or perhaps a trifle less.

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When plank ends splinter—work Plastic Wood into the cracks with a putty knife. If splintered portions have broken away and become rotten, cut away rot leaving edges rough. Put on a layer of Plastic Wood thick on inside, thin on outside edge. Let it dry. Repeat this process until inside edge of opening is almost closed. Then fill in remaining portion. When dry plane down. This repair will hold fastenings and is permanent. Buy Plastic Wood from any ship chandler, paint or hardware store. Thousands of uses around a boat.

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Among experienced yacht owners and repair yard men Edward Smith is decidedly more than just a brand name. It represents a hundred-year-old tradition of the finest paints and varnishes. No product on the market today can match it for quality, durability and beauty of finish.

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TRIPLE-SAFETY
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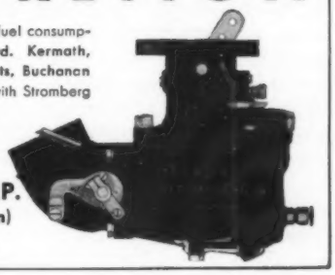

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The New Matthews "50" Standardized Cruiser

"WHEREVER YOU CRUISE . . . You'll find a MATTHEWS"

An expression repeated to us so many times, in recent years, by our legions of friends and owners, that it has now become a slogan.

And the expression takes on new importance because, within a few more months, a Matthews "46" Stock Cruiser will be operating in the frigid waters of the Antarctic Circle. Admiral Byrd's second Antarctic Expedition has with it the Admiral's own Matthews "46" which will be used as a despatch boat.

Isn't this tribute rather convincing proof of the unusual ability and remarkable seaworthiness built into every Matthews Stock Cruiser? We are sure we could soon convince you — or for that matter, talk to any Matthews owner.

There's a model for every cruising requirement — eighteen stock models and thirty-two stock arrangements. We'll be glad to send you illustrated literature. Send for free illustrated circular "How to build a 30-inch model Matthews Cruiser."

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A projecting rock or broken-off pile is immovable enough to qualify with any boatman. With impact, *Hyde Bronze will bend*, thus relieving the shock that might otherwise be transmitted to the shaft or strut and cause their damage. And a Hyde Bronze Propeller can be straightened cold to get you home. Furthermore, Hyde Propellers never lose their pitch in use.

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Send for this booklet, "Propeller Efficiency." It tells you about Hyde Propellers, Stuffing Boxes and Struts, and other Hyde Products that always get home safely.

DORADE • NARWHAL
SAVANNAH • TIDAL WAVE
GITANA • CYNARA • KALMIA

ARE YOU READY FOR THE AMERICA'S CUP RACES?

There's lots of ocean around Block Island, and suppose big seas decide to attend also? This calls for a really seaworthy, high sided, strongly rigged yacht . . . no tub but a staunch cruiser. And, if later there is a harbor to make . . . you MUST have an engine. Motor boats are good but for seeing deep water, in comfort and safety, it's an auxiliary cruiser . . . no doubt about it.

A big schooner . . . yes, it is great. But a small schooner, cutter, ketch or yawl is just the thing. Second-hand one now? Too late. Even though you hit one by luck, a new one costs little more; and it would be new and after your own ideas.

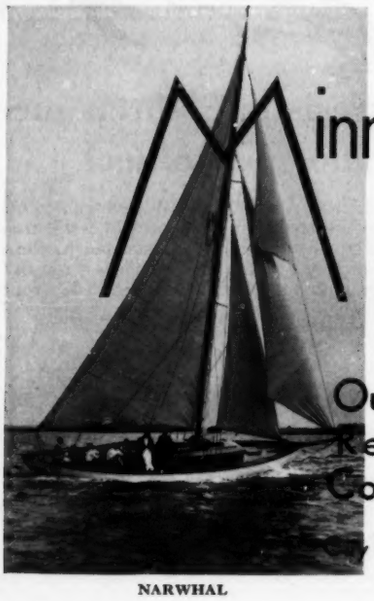
We have always specialized on fast auxiliary cruisers. We are geared up for the purpose of building, storing and outfitting them. We have the men who can put strength where strength is needed. And we have men who are sailors and who race the Sound and on deep blue water. No guessing, no putting in something that *may* be good enough. They know what is needed; and they help your designer in keeping up safety and keeping down expense.

Can anyone name a similar list of better, stauncher, faster and all round cracking good cruising yachts; able to go anywhere and yet winners in their way, than DORADE, ALSUMAR, NARWHAL, SAVANNAH, TIDAL WAVE, GITANA, CYNARA, KALMIA, all built by us? And did you ever hear of one of them breaking down in a race? And now we are building a Hand designed forty-foot overall double ender for deep water sailing. Incidently we rerigged Robinson's SVAAP and off he went on another trip around the world.

In the smaller sizes, we believe that NARWHAL is the most satisfactory all round forty-foot length auxiliary cruiser we have ever seen. And they have never planned anything as good as a double ender with its deep sections below water for carrying an engine, and for "taking it." Phil Rhodes would be glad to make changes to suit. And he has sketches for a smaller edition. Or CYNARA that cruised all the way to Canada and is a lady for looks and a husky in spite of her good looks, could be reproduced by arrangement with Olin Stephens.

In any event ask your Naval Architect to get out plans right away for your auxiliary cruiser, so that you can cruise next summer in fair weather and foul; see the trial races; feel comfortable and safe watching the America's Cup Races and that in spite of anything the weather or the big steamers and diesels can kick up.

When you have the plans, ask your architect to send them to us and we promise to the best of our ability, a square deal in quality and price.



NARWHAL

"Ahto's" Fifth Atlantic Passage

(*Continued from page 36*)

Ahto, as the *Enterprise* had no motor. Barber and his new shipmate, Bill Brackle, joined us for the hunting trip. We took our time going up the river, sailing only by day. There was good crocodile shooting along the banks and occasionally we saw a hippo, but they were immune to our bullets. We continued 240 miles up the Gambia River, and then made a trip on foot into the jungle. We took provisions for six days and went armed to the teeth, dressed in all manner of odd clothing. Confident that we would return with no less than half a dozen lions and tigers, we started out. I think we were more in danger of being hunted ourselves, but we had a lot of fun, got some game, and plenty of thrills. However, we were glad to return to the *Ahto* and get back to civilization.

It was while we were on the hunting trip that we decided to race across the ocean with the *Enterprise*. Barber was sure that he could beat us, and we were equally confident that we would win. As soon as we returned to Bathurst we started preparations for the race to New York. Provisions were scanty in Bathurst, and so was our capital. We bought what fresh foods we could keep, plenty of rice, peanuts, potatoes, and onions. We shared the biscuits and the tinned stuff which we had taken on in Las Palmas with Barber, and also loaned him a sail, as his mainsail was in poor condition.

On May 17th, at 2.00 P.M., we got underway. As we had to sail several hundred miles to the north and west to pick up the trades, *Enterprise* took the lead, being faster on the wind than the *Ahto*. But we kept within sight of her for more than 700 miles until we entered the trades, after which *Enterprise* fell quickly astern. The last we saw of her was on the evening of May 27th, ten days out of Bathurst.

For the next five days after leaving *Enterprise* we had fair, but light breezes, and then we hit a spell of calm weather that lasted six days, during which we made less than a hundred miles on our way toward New York. It was terribly hot and we spent most of the day trying to keep cool. At night we put out an anchor light and turned in. I had been complaining about the lack of sleep while we were sailing, but I was only too glad to stand watch again when we finally picked up a good breeze. Two days after the calm we were taken ill. Ahto, we found, was running a temperature of 105 degrees, while my own was 103. The only drugs we had on board were castor oil and quinine, so we took doses of both. We were unable to stand watches for the next six days. We lay in our bunks and could eat only biscuits and water. The fever wore off slowly and even after we were able to be on our feet we were still weak.

With our health regained, we continued, making good daily runs before the fresh trades. The days passed without incident in the usual sea routine of watch on and watch off, and monotonous meals. On the southwestern edge of the Sargasso Sea another stretch of calm weather was encountered. This lasted for eight days. By this time our provisions were running low and the rice was fairly walking about the ship.

After eight days of slatting about, we picked up a breeze and altered course to the north. Rain squalls became frequent, and they removed what we considered a very good coat of tan — but I rather think that it wasn't all tan. Our landfall was made, as predicted, on the coast of New Jersey. I was in the cabin, cooking breakfast, when Ahto sighted the buildings of Atlantic City. I had looked forward to this landfall as one of the thrills of my life, as this was my first ocean crossing in a small boat, but I was not curious enough to come up from the cabin until breakfast was ready to serve.

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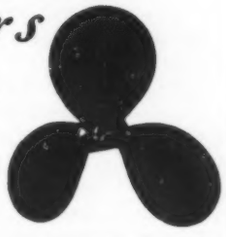

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EMERALD AND LIGHT GREEN

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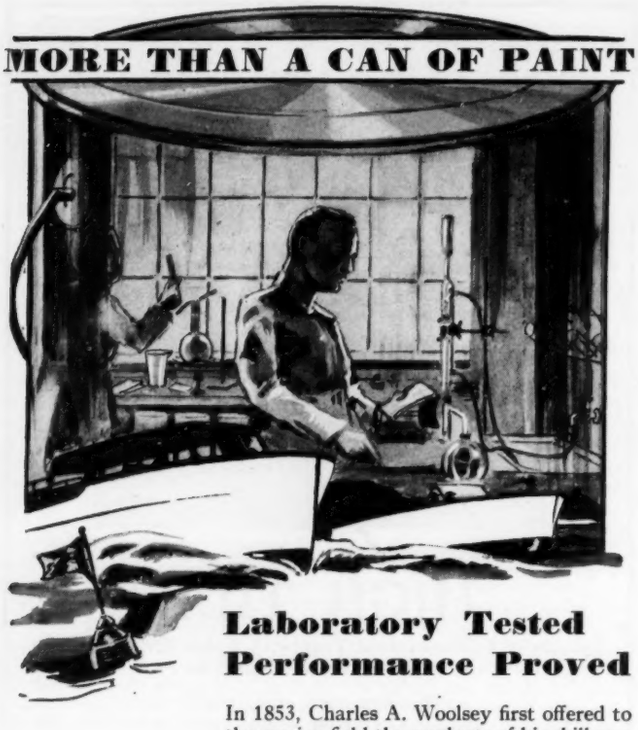

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In 1853, Charles A. Woolsey first offered to the marine field the products of his skill as a specialist in protective paints and varnishes. One of his earliest accomplishments — Copper "BEST" Paint is used today on wood boat bottoms all over the world.

Through the years, the laboratory of Woolsey tho rich in experience and practical knowledge of marine paint and varnish requirements, has never ceased its untiring research in its endeavor to constantly advance the cause of boat preservation.

Boat owners who have used Woolsey's recent offering "Tali-cop," will attest to this most perfect of all toxic copper bottom paints that so remarkably keeps bottoms absolutely clear of grass and barnacles, and protects, *positively*, against worm destruction.

Yes, a Woolsey product is more than a can of paint. Whether it be Woolsey's *Adamant* Deck Paint, Yacht White, "*Tungspar*," the aristocrat of pale varnishes or "*Cawspar*," the king of all Bakelite Resin base varnishes, you are assured that it is formulated, not by guesswork, but only after extensive laboratory tests and long practical use.

The boat owner who will paint his boat throughout with "*Woolsey's*" can be assured that he is obtaining the ultimate in boat beautification and boat preservation.

There is a "Woolsey" product for every need. If you do not know the location of your nearest Woolsey Dealer write us for his name and address.

But — to be *sure*, specify "*Woolsey's*."

Woolsey's Copper Paint Goes to the South Pole

Before starting on her Antarctic expedition the "Bear of Oakland" had her bottom painted with Woolsey's Copper Paint.

"Suggestions on How to Paint a Boat"

A copy of this well known and popular handbook complete in boat painting information together with a copy of Woolsey's 1934 Tide Calendar may be had for 12 cents in stamps.

Send for your copies, Now!

NRA

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C. A. WOOLSEY PAINT & COLOR CO.

Established 1853

JERSEY CITY NEW JERSEY

After almost seven weeks at sea, one begins to think that dry land is a figment of the imagination.

We crossed the finish line off Sandy Hook at 9.00 A.M., July 6th, just fifty days out of Bathurst, and just four days ahead of our competitor, the *Enterprise*. It was a hard passage, but we are already talking of other places where we expect to go. It doesn't take long to forget the hardships and the bad food — when one is still young and very much of a fool.

\+ + +

The Paris Salon Nautique

(*Continued from page 52*)

foot 23 m.p.h. express cruisers, powered with two Chrysler 60–75 h.p. engines, and beautifully finished. These craft still retain the classic form of underwater body which has served them so well, but owing to the rate of exchange, they are meeting with increasing competition from the 37-foot 6-inch "Sea Monarch" — the one first-class standardized power cruiser made in England, with a speed of 28 m.p.h.

Chantiers Excelsior showed a boat much on the same lines, powered with a 250 h.p. 12-cylinder Hispano-Suiza giving a speed of 20 knots. But as she was painted gray, had very simple fittings, and was one of a type used by the French Navy as tenders on torpedo firing grounds, visitors seemed inclined, like the Levite, to pass her by.

There were several other motor craft, of no great interest, but fewer speed boats than usual — the Chris-Craft, 38 m.p.h. 25-footer standing in a class by itself. Of French runabouts the Delage took pride of place, the larger being built of mahogany, the smaller of oak — a wood that seems on the heavy side.

Small one-design sailing craft — *Canards*, *Plongeons*, and *monotypes de Chatou*, mixed with sailing dinghies and a fleet of canoes, some with sails, some adapted for an outboard motor, rounded off the boat section; and this year the fittings used were more substantial. But all these craft were more expensive than last year.

Of the engines, at first glance, it appeared that petrol had been displaced by heavy oil, but this false impression resulted because several well-known firms were absentees through reasons quite unconnected with trade depression. Peugeot, Badouin, Renault, and many other well-known engines, one failed to find; and the German exhibits were few and far between. There was no particular advance in Diesels, either high or low speed, and taken as a whole those exhibited seemed less clean than their opposite numbers in England and America, the type predominating being two-strokes. A remarkable claim of a consumption not exceeding 0.35 lbs. of heavy oil per b.h.p. hour was made for the 50 h.p. 2-cylinder Duplex Diesel — a two-stroke slow-running type with rotary scavenging pump, neat monobloc, and few exposed parts. The Aster Diesel — another two-stroke — was one of the few engines that dispensed with Bosch fuel pumps and injectors, the R. E. F., another German design, being fitted instead.

The main trend in outboard motors seemed to be the increasing use of brass instead of aluminum. Several different sized models of Johnsons, Eltos, and Evinrudes were well in evidence, besides some new makes — Delage, French, and Britannia, English. But I could discover no appreciable change in design.

My main impression — and I have dealt with the Salon this year more in general than in detail — is that there is a definite tendency in France towards the small yacht. The smaller the craft the better the sport is an axiom becoming popular through sheer force of necessity. When better times return, French yachting may well experience an unexpected revival, a real boom.

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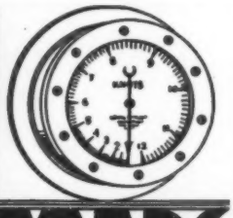

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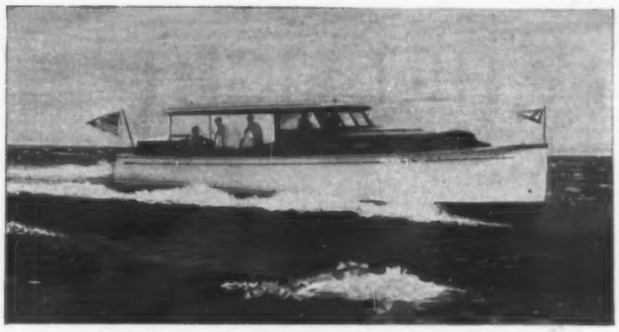

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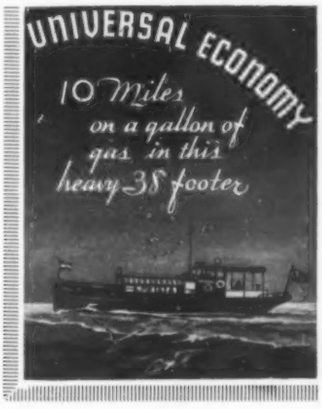

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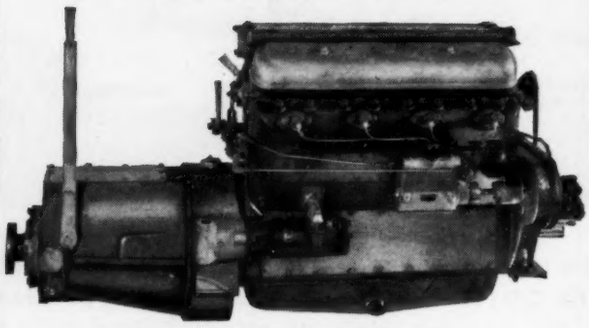

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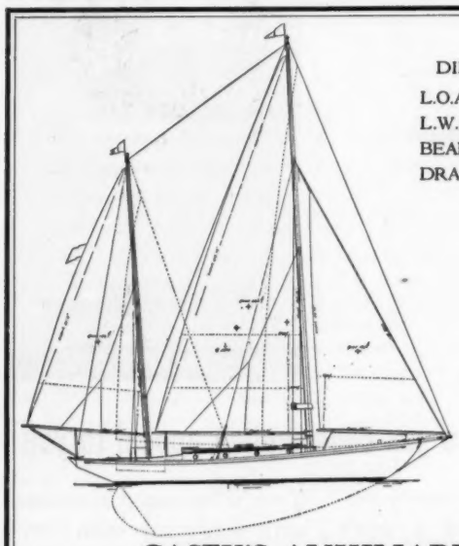
A QUALITY of extra whiteness in the making of this paint endears it to yachtsmen who want the best. Use it above waterline and in cabins. Stands repeated scrubbing, and wears down evenly.

Write for free copy of Davy Jones Locker Booklet

USE "NEW JERSEY" PAINTS FOR PROTECTION



DIMENSIONS
L.O.A. 40'
L.W.L. 30' 6"
BEAM 11'
DRAFT 5' 10"

CASEY'S AUXILIARIES

CONSTANTLY IMPROVED **ALWAYS UP TO DATE**

Here is one of our new designs for the 1934 season — a 40-foot auxiliary with ketch rig. In creating this boat our aim was to design and build a fast, comfortable, seaworthy craft and we feel that this design speaks for itself.

We feel that two of the predominating faults to be avoided are short overhangs which are apt to create excessive pitching and narrow beams which make for excessive rolling.

One of the questions often asked is "What makes a good sea boat and what features are most important?" Moderate overhangs make an easy craft, prevent the bow from diving and the stern from settling. A good generous beam prevents excessive rolling, and makes a boat sweet and comfortable.

You can see that the Casey Boats have the needed beam and overhangs, making them comfortable and fast in rough waters. Some boats permit seasickness much more easily than others and we believe that the cause is excessive pitching and rolling. Moral — Buy a Casey Boat.

We are turning out new and faster designs for 1934.

All kinds of servicing and storage. First class work at reasonable prices.

CASEY BOAT BLDG. CO., INC. FAIRHAVEN MASS.

WIND AND WATER

Dr. Manfred Curry

This book, formerly published in Germany, contains 120 illustrations selected from thousands gathered over the world, each of which, with its accompanying descriptions, brings out some particular feature of wind and water behavior. The pictorial worth of these camera studies is matched by their scientific worth as explained by Dr. Curry in the introduction. The care with which this American edition has been edited merits your interest and enthusiasm. *A perfect Christmas gift.* $7.50

YACHTING, INC.

205 East 42nd Street New York, N. Y.

"Port Hole Pete" with Topping Brothers

Topping Brothers, of 159 Varick St., New York, well-known marine hardware supply house, recently announced that W. R. Chamberlain, better known as "Port Hole Pete," is again associated with them and is in a position to give to customers the benefit of his long experience in fitting out new or old boats and in solving problems involving the use of marine hardware.

\+ + +

Meneely Representing Alden in N. Y.

John G. Alden, of 131 State street, Boston, Mass., announces that he is now represented in New York by Mr. Henry Meneely, who is temporarily located at 273 Lexington Avenue. Mr. Meneely has had a wide experience in both cruising and racing, especially ocean racing, and is the former owner of the well-known double-ender *West Island*. With his racing and cruising experience backed by a thorough familiarity with modern design and methods of construction, he is well qualified to represent the well-known Boston designer in all matters concerning the designing, building and selling of yachts.

\+ + +

Woodman, Designing Competition Winner, Opens Office in Portland

George M. Woodman, Jr., naval architect and third place winner in the recent designing competition sponsored by the Cruising Club of America, has opened an office at 257 Front St., Portland, Me., to conduct the business of yacht designing, brokerage, and insurance.

Mr. Woodman is a graduate of the M. I. T. course in marine engineering and naval architecture and, in addition to his technical training, has had considerable practical experience in boats along the New England coast. Yachtsmen wishing to build, buy, or sell yachts will find his efficient service at their disposal.

\+ + +

Two New Grays

The Gray Marine Motor Company announces two new additions to the complete Gray line of marine motors from 5 to 150 h.p.

The new Gray "Four-40" motor is the newest four with a bore of 3⅜ inches and a stroke of 4 inches, giving it a displacement of 143 cubic inches. Only 36 inches in overall length, with complete built-in clutch and reverse gear, it weighs but 490 pounds and develops 43 h.p. at 2400 r.p.m. It can be equipped with 2:1 built-in reduction gear at slight additional cost.

The new Gray "Light Six" is a medium-duty cruiser type of engine suitable for replacing older 4-cylinder models where the owner wants the smoothness of a six at the cost of a four.

The "Light Six" has a bore of 3 inches and a stroke of 4 inches with 170 cubic inches displacement. On an overall length of 42¾ inches it weighs 577 lbs.

A catalog describing these two motors is available from the Gray Marine Motor Company, 656 Canton Avenue, Detroit.

Barbasol

HENRY HAS THE LITTLE WOMAN GUESSING

NOW, HENRY, DON'T START GROWLING LIKE A LION WITHOUT A CAGE. YOU'VE GOT TO SHAVE BEFORE THE JONESES COME OVER AND THAT'S THAT!
O.K. LITTLE GIRL. I'LL DO 'ER.
I'D BETTER SEE WHAT HE'S UP TO. THERE'S SOMETHING FISHY ABOUT THIS. HE NEVER WANTED TO SHAVE AT NIGHT BEFORE.
H'MM. HE HASN'T EVEN GOT A LATHER YET. BETTER LET HIM ALONE THOUGH--- SEEMS HAPPY.
YOU LOOK SWELL! WHAT'S THE SECRET?
BARBASOL! BARBASOL! NO BRUSH, NO LATHER, NO RUB-IN. DUM DE DUM DE DUM DUM DUM

SHAVE WITHOUT LATHER! And do it with Barbasol, the coolest, smoothest shaving cream on the market. Because it's a cream, not a soap, Barbasol holds the whiskers firmly upright, gives the razor proper resistance so it glides along without a pull or a scrape. Leaves the natural oil in so the skin stays soft and pliable. Protects the face from sun- and windburn. Try it today. And use it *right:* **1.** Wash your face and leave it wet. **2.** Smooth on Barbasol (no need to rub it in). **3.** Wet your razor and SHAVE. That's all there is to it for the cleanest, coolest, quickest shave you've ever had. Generous tubes at all druggists', 35¢ and 65¢, or large jar, 75¢.

THE BARBASOL COMPANY, INDIANAPOLIS, IND.

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Singin' Sam, *the Barbasol Man* with songs you like to hear, Tuesdays and Thursdays on a coast-to-coast Columbia (WABC) network, 8:15 to 8:30 P.M., Current New York Time, in the East and Middle West; and 11:30 to 11:45 P.M. Current New York Time in the Rocky Mountain and Pacific States.

Edwin C. Hill, *"The Human Side of the News,"* Mondays, Wednesdays and Fridays on a Columbia (WABC) network, 8:15 to 8:30 P.M. Current New York Time, in the East and Middle West.

Consult radio page of your local newspaper for stations.

Why Not BE SURE Of Steady Trouble-Free Lighting

IF you've been troubled with unsatisfactory, unreliable lighting on your boat, why go through another season with the same experience? Why not install a light plant that you KNOW will never fail you—that will ALWAYS be on the job.

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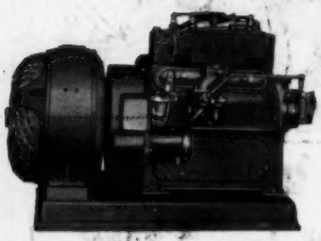

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Water Cooled Series
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Also manufacturers of famous U.S. FALCON Marine Engines — 1–2–4–6 cyl. — 5, 10, 26–46, 35, 45, 70, 80, 90 h.p.

Write us today while U.S. prices are still low

United States Motors Corp.
"PRODUCTS MUST GIVE SERVICE"
102A Nebraska St. EST. 1890 Oshkosh, Wis.

A Symbol

THE Yule log—symbol of Christmas through the ages. On the great holiday the lord of the manor threw wide the doors, and misery and squalor were forgotten in the cheer of the boar's head and wassail.

Customs change, but the Christmas spirit is ageless. Today millions express it by the purchase of Christmas Seals—the penny stickers that fight tuberculosis—still the greatest public health problem. Your pennies will help pay for free clinics, nursing service, preventoria, tuberculin testing, X-rays, rehabilitation and other important work such as medical and social research.

THE NATIONAL, STATE AND LOCAL TUBERCULOSIS ASSOCIATIONS OF THE UNITED STATES

BUY CHRISTMAS SEALS

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